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## Flight

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### CONTENTS

Editorial Comment :	PAGE
The Petrol Tax .. .. .	315
The King's Cup .. .. .	316
Croydon Airport Formally Opened .. .. .	317
King's Cup and Siddeley Trophy .. .. .	319
Detroit Show .. .. .	320
Private Flying: Touring the Handley Page Slot .. .. .	324
Light 'Plane Clubs .. .. .	325
Bristol Air Pageant .. .. .	326
Airisms From the Four Winds .. .. .	330
Aircraft Brakes .. .. .	332
Royal Air Force .. .. .	333
Time Flies at Halton .. .. .	333
In Parliament .. .. .	334
Personals .. .. .	334

### "FLIGHT" PHOTOGRAPHS

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2.

**DIARY OF CURRENT AND FORTHCOMING EVENTS**  
Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1928

May 10 .... "The Design and Construction of Modern Rigid Airships." Mr. B. N. Wallis, before R.Ae.S. and Inst.Ae.E.

May 17 .... Aero Golfing Soc.—Spring Meeting, "Flight" Challenge Cup

May 18 .... Martlesham Heath Reunion Dinner (Connaught Rooms, 7 p.m.)

May 24—

June 9 Royal Tournament, Olympia

May 27-28 Light 'Plane Meeting, Hamble

May 30 .... Wilbur Wright Lecture "The Slotted Wing." Mr. F. Handley Page, before R.Ae.S. and Inst.Ae.E.

June 3-9 R.A.F. Rifle Association Prize Meeting

June 7 .... 7th Annual Middle East Dinner

## EDITORIAL COMMENT



WITHOUT wishing to enter into any controversy concerning the wisdom or otherwise generally of the Petrol Tax, we do feel that one of its effects may have been, if not entirely overlooked, at any rate imperfectly realised. We are referring to its effect on civil aviation. To begin with, the amount of extra revenue which the Exchequer could hope to collect from civil flying by the additional 4d. per gallon would form an almost infinitesimal percentage of the total. In other words, the nation could not possibly benefit to any appreciable extent. The extra cost of petrol will, however, be a very serious item in the balance sheet of such a concern as Imperial Airways, not to mention the almost paralysing effect which the additional cost will have on the Light Aeroplane Clubs, which are already struggling along against the greatest financial difficulties.

### The Petrol Tax

Nor is the claim that civil aviation should be exempt from the Petrol Tax an illogical one, as, after all, it is the one form of transport which does not use the roads and the fuel tax is essentially a road tax. It could be justified on a number of other heads, but we need here only mention one aspect which is, in itself, sufficient justification. Road transport, or at least that form of it which is most directly comparable with civil aviation, *i.e.*, vehicles plying for hire, is in a position to pass on the tax to its customers. Doubtless, companies like the omnibus concerns will do so. But to Imperial Airways such a course is closed for the simple reason that the fares on the services operating from Croydon are not solely determined by the amount of traffic which can be attracted.

It should be remembered that Imperial Airways are in competition with foreign firms, and that as a result its fares must of necessity be somewhere very near the same as those charged by foreign companies. That means that the company's hands are tied to a large extent, and there is little or no hope of passing the additional cost along to travellers in the form of higher fares.

The Light Aeroplane Clubs are acknowledged to be doing work of great national importance. Like

Imperial Airways they are subsidised, but the subsidies are barely sufficient as it is, and will be wholly inadequate if the new tax is to be imposed. It is not drawing too long a bow to assert that there is indeed quite a possibility that if the Petrol Tax is imposed upon them, several and possibly all the clubs may be compelled to close down unless an addition to the subsidy is granted.

Then there is the third—and admittedly small—class of civil aviation activities: the private owner. Already flying is a fairly costly business, and it is only by years of hard work and perseverance in face of great difficulties that aircraft constructors have been able gradually to bring the cost of machines down. The Petrol Tax would possibly not directly affect the primary cost of machines (although it might even do that by causing a smaller demand), but it would seriously threaten many private owners who at present can only just afford to run a machine, but who could not afford to do so if the running costs were to be increased.

Altogether, we feel that Government insistence upon applying the tax to civil aviation would exert a hampering influence upon development, which might very seriously affect the whole future of civil flying in this country, and we trust that measures will be taken to see that an exemption is made in favour of an industry which is already of great national, and even Imperial importance, and which is becoming more so every day.

## The King's Cup

In this week's issue of FLIGHT we publish the preliminary announcement concerning the race for the cup presented by His Majesty the King, to be flown on July 20 and 21, starting and finishing at Hendon, and the Siddeley Trophy Race.

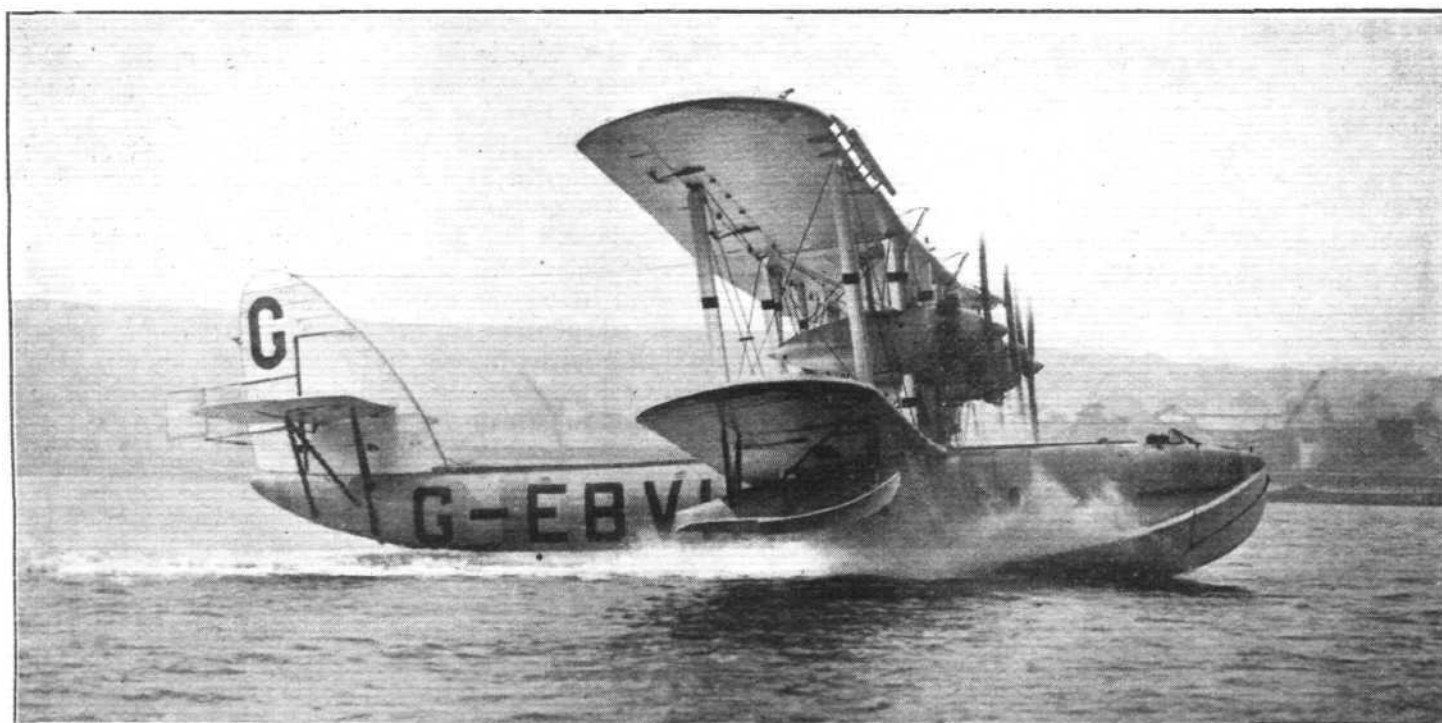
No announcement is made as yet concerning the system of handicapping which is to be used, but it is reasonably certain that no formula will form the basis. At one time it was the intention to make

this race a formula race, but considerable opposition was, we believe, met with from various quarters, and it is now assumed that Captains Goodman Crouch and Dancey will see to the handicapping.—In spite of criticisms which are always being levelled at handicappers, these two experts have really reduced handicapping to a fine art, and provided those responsible for the organisation will insist upon sufficient data being furnished, there is no reason to doubt that close finishes will be achieved, in so far as such a thing is possible over a course of more than 1,000 miles.

On the subject of formula racing, FLIGHT has dealt with the problems at considerable length in the past. It will suffice if we reiterate here that we are not against formula racing. In fact, we are all in favour of it. But we do not think that the King's Cup Race is the right occasion for such racing. That race should be a propaganda race first and last. It should give as many people as possible an opportunity to see the machines, and it should provide as close finishes as possible so as to sustain the interest. A formula race is likely to be of great technical value, but it will almost certainly not be very exciting from the point of view of the spectators. Let us have one formula race every year by all means, but let it be of a technical rather than a spectacular nature and let us hold it over a convenient and fairly short course, with but secondary regard to the degree of public interest which it may arouse.

Of this year's King's Cup Race it can at any rate be said that it will be, as is right and proper, a "Circuit of Britain," or as near it as is practicable. More than that cannot be said until further details are made known.

The idea of holding the Inter-Club Race for the challenge cup presented by Mr. J. D. Siddeley simultaneously with the King's Cup Race may be sound in so far as it reduces the organisation necessary, the same doing for both races, but otherwise we could have wished to see the race for this cup a separate one.



["FLIGHT" Photograph]

IMPERIAL AVIATION: The second of the Short "Calcutta" flying-boats, with three Bristol "Jupiter" geared engines, is now undergoing her flying trials. Our photograph shows the machine taking off at Rochester, piloted by Mr. Lankester Parker. Note the Handley Page automatic wing tip slots.

## CROYDON AIRPORT FORMALLY OPENED

LADY MAUD HOARE formally opened the new airport of Croydon, on May 2. Sir Samuel and Lady Maud Hoare were received at the new buildings by Air Vice-Marshal Sir Sefton Brancker. After unveiling a commemoration tablet, Lady Maud unlocked a door, and the airport was

Easter fortnight of this year, the number was 1,630, as compared with 1,100 of Easter a year ago.

The value of goods imported by aircraft into Great Britain had now risen to £1,252,000, an increase of 100 per cent., as compared with the figure of 1920, and the value of exports



["FLIGHT" Photograph

**CROYDON FORMALLY OPENED:** Lady Maud Hoare making her interesting speech after formally opening the new airport. On the left are Sir Samuel Hoare and Sir Sefton Brancker and, on the right, Mr. Bertram, the Deputy-Director of Civil Aviation, is nearest Lady Maud, whilst immediately behind him is Lord Thomson, who was Air Minister in the Labour Government.

declared open. In her brief speech, Lady Maud expressed her appreciation, as a fairly experienced air passenger, at the modern accommodation provided. Sir Samuel Hoare, in his speech, said that in a single week of July last year, nearly 1,400 passengers arrived or left Croydon by air, whilst in the

and re-exports to £1,400,000; an increase of over 300 per cent. Perhaps most noteworthy was the figure for the carriage of bullion and gold and silver coin by air. During the last three years no less than £26,000,000 worth had been flown into and out of Croydon.



The New Airport: After the opening of the reconstructed airport on May 2, Sir Samuel and Lady Maud Hoare inspected the new buildings, and a row of commercial air liners. The official party are here seen emerging from one of the machines. Next to Sir Samuel and Lady Maud are the Mayor and Mayoress of Croydon. In the doorway of the cabin is Mr. L. Bertram, the Deputy-Director of Civil Aviation.

"FLIGHT" Photograph





["FLIGHT" Photograph

**CROYDON AIRPORT OPENING CEREMONY: Lady Maud Hoare unveiling the tablet at Croydon Airport on May 2, 1928, which commemorates the ceremony by Lady Maud. The Minister for Air, Sir Samuel Hoare, is looking on.**

If he took British figures as distinct from the figures of all countries, he found that they showed a fine record of British progress and reliability. British machines were carrying three times as many passengers as in 1920, and have during the last three years flown two and a half million miles, a distance

equal to more than a hundred times round the world at the equator; without a single accident involving injury to any passenger.

These illustrations showed that air travel had become a serious and accepted means of transport about the world. They showed that a satisfactory beginning had been made with a movement, the ultimate results of which could not be foreseen or exaggerated. He hoped that in the near future we should see machines flying not only between the Continent and London, but also between London and the Far East. He was glad to say that during the last few days he had initialled the heads of an agreement between the Government and Imperial Airways for a regular weekly service between London and India. If and when certain political difficulties were removed, that service would be regularly flying in the near future. What a splendid and thrilling addition to the transport facilities of the capital of the Empire! The traveller who needed speed would arrive at Croydon, enter his machine, and in little more than a week, descend on his magic carpet upon Karachi or Delhi. Having flown out to India and tasted the pleasures of an air journey that Lady Maud Hoare and he enjoyed to the full a year ago, he would certainly fly back to London, and find upon his arrival one of the best appointed aerodromes in the world.

After the speeches, the official party inspected the aerodrome and a row of machines which included a Junkers G.31 and a French Liore et Olivier. A cabin boy of the latter presented Lady Maud with a bouquet of flowers which had been brought from France by air that morning. Sir Sefton Brancker presented Major Richards, chief aerodrome officer, and Sir William A. Liddell, director of works and buildings, presented Major Lovat and Mr. W. J. Anderson, who represented the chief building contractors.

In FLIGHT, December 15, 1927, we gave particulars of the new airport. On December 9, 1927, Sir Samuel Hoare, opened the new road known as Forester's Drive, which was constructed in place of Plough Lane. The new buildings include an 80-ft. control tower, and complete administrative offices, hotel, etc. The huge ferro-concrete hangars, with workshops and stores adjoining, are each 300 ft. by 150 ft. in size. A large area of concrete was laid down where the passengers embark.



### The Royal Tournament

HIS MAJESTY THE KING will open the Royal Tournament at Olympia, on May 24, and will be received in the arena by three Guards of Honour, one each from the Royal Navy, Regular Army, and the Royal Air Force, with colours and bands. The vestibule will be lined by cavalry. British airmen have become famous for the wonderful feats of endurance and flight undertaken by them. Demonstrations of the power of the air arm are suitable for outdoor display in the main, but the process by which men are made fit is peculiarly suitable for indoor treatment, and at the Royal Tournament, in May, the foundation training work of recruits will be included in the programme, and will form one of those striking marching effects for which the Royal Air Force has become famous in the arena. The display will be carried out by 200 men from the Depot at Uxbridge. The object of the display is to demonstrate the general activity and physical fitness of the airman produced by the training he undergoes as a recruit on joining the Royal Air Force. The display consists of the following:—1. Marching exercises. 2. Preliminary exercises to promote freedom of movement. 3. Exercises with human support. 4. Tableau. The band of the Royal Air Force will be included in the display.

### "Broadsideing on Land and in the Air"

THOSE of the many thousands of spectators who have visited Greenford Park to witness the thrilling spectacle of fast motor-cycles roaring around the corners in terrific broadside skids will be given further thrills at the meeting which has been arranged for Saturday, May 12. The Greenford Motor-Cycle Racing Club have arranged with Capt. Hubert Broad to give an exhibition of "broadsideing in the air" on a D.H. Moth light aeroplane. It is believed that this is the first time that an event including "broadsideing" in the air and on land has been seen in this country.

### R.33 Scrapped

THE historic airship R.33 is now being demolished. It was a sister ship to the R.34, which made the double crossing of the Atlantic. In April, 1925, it broke away from the mooring mast in a gale and drifted over the North Sea with

a skeleton crew on board, commanded by Flight-Lieut. R. S. Booth (now Squadron-Leader). By great skill it was safely landed again, 30 hours afterwards.

### The "Argus" Returns

H.M.S. *Argus*, Capt. A. R. Palmer, has returned to Portsmouth from special duty in China, where she was sent in January, 1927. The vessel will undergo refit and will afterwards join the Atlantic Fleet as second aircraft-carrier with the *Furious*.

### The "Courageous" Ready

THE new aircraft-carrier "Courageous," commanded by Capt. Aubrey Lambert, has been ordered to leave Devonport for the Mediterranean on May 14 or 15. At present she is undergoing trials after being converted as an aircraft-carrier.

### Air Statistics

ACCORDING to the aeronautic branch of the Washington Department of Commerce, there were 164 lives lost in air accidents in America during 1927. Pilots' errors caused 48 per cent. of them.

### Attack on Endurance Record

THE French military pilots Arrachart, who are brothers, left Paris on May 8 to attempt an endurance record. Bad weather forced them down after a flight of nearly 12 hours in a closed circuit. Their machine was a Breguet 19A.2 fitted with a 550 h.p. Renault engine. The fuel tanks have a capacity for 60 hours' flying.

### U.S.A. Seaplane Record

AN American naval seaplane, P.N.12, made a record endurance flight of 36 hours on May 5 and landed at Philadelphia Naval Yard. The flight was commenced in secret on the previous Thursday afternoon. It is claimed that the old record was beaten by seven hours or more.

### Solo Records

LIEUT. ROYAL THOMAS flew alone for 35 hrs. 33 mins. on May 2-3 in an attempt to set up a record from Roosevelt Field, New York. He landed shortly before midnight owing to fuel leakage. Col. Lindbergh's solo flight across the Atlantic took 33½ hours.

## THE KING'S CUP

(Under the Competition Rules of the Royal Aero Club and the Regulations of the F.A.I.)

Presented by His Majesty The King. Starting and Finishing at Hendon Aerodrome, on Friday and Saturday, July 20 and 21, 1928.

**Course.**—The course will be approximately 1,085 miles, starting and finishing at the Hendon Aerodrome.

The course will be divided into two sections, to be completed on two consecutive days, the sections being divided into stages by the controls.

**Section 1.**—Friday, July 20, 1928.

London (Hendon Aerodrome) .. .. Start.

**Controls :**

Norwich (Mousehold Aerodrome) ..	95 miles.
Birmingham (Castle Bromwich Aerodrome)	125 "
Nottingham (Hucknall Aerodrome) ..	40 "
Leeds (Sherburn-in-Elmet Aerodrome) ..	52 "
Newcastle-on-Tyne (Cramlington Aerodrome) ..	88 "
Glasgow (Renfrew Aerodrome) ..	120 "

Approximately .. .. 520 miles.

Section 1 must be completed by 10 p.m. on Friday, July 20, 1928. Aircraft not having arrived at Glasgow (Renfrew Aerodrome) by that time will be eliminated from the race.

Aircraft must not leave the aerodrome until their starting time the following day.

**Section 2.**—Saturday, July 21, 1928

Glasgow (Renfrew Aerodrome) .. .. Start.

**Controls :**

Manchester (Woodford Aerodrome) ..	192 miles.
Bristol (Filton Aerodrome) ..	125 "
Southampton (Hamble Aerodrome) ..	68 "
Lympne (Lympne Aerodrome) ..	100 "
Brooklands Aerodrome (turning point only)	60 "
London (Hendon Aerodrome) (Finish) ..	20 "

Approximately .. .. 565 miles.

The race will close at 10 p.m. on Saturday, July 21, 1928.

**Controls** (compulsory Stops)

Aircraft must make a stop of 20 minutes at each control with the exception of Glasgow (Renfrew Aerodrome), where they will remain the night, and Brooklands Aerodrome, which is a turning point only.

### Prizes

His Majesty the King .. .. The King's Cup.  
Sir Charles Wakefield, Bart. .. .. £250.

Other prizes will be announced later.

Regulations and entry forms can be obtained from the Royal Aero Club, 3, Clifford Street, London, W.1.

## THE SIDDELEY TROPHY TOUR

(Under the Competition Rules of the Royal Aero Club and the Regulations of the F.A.I.)

MR. J. D. SIDDELEY has presented to the Royal Aero Club a challenge cup for competition amongst the light aeroplane clubs.

For this year it has been decided that the competition shall take the form of a handicap race, to be run simultaneously with the King's Cup Race and over the same course. Aircraft taking part in the Siddeley Tour may also compete at the same time for the King's Cup.

**Date.**—Friday and Saturday, July 20 and 21, 1928.

**Competitors.**—The race is open to light aeroplane clubs, and there is no restriction as to the number of competitors entered by each club.

The aircraft entered must be the property of the club entering or a member of the club. The pilot must be a member of the club entering. Paid pilot instructors are

excluded. In the case of privately owned aircraft, the owner must be the pilot.

**Aircraft.**—The race is open to aircraft, the weight empty of which must not exceed 1,000 lbs. Weight empty means the total weight in flying order. The following weights are not included : fuel (petrol and oil) and crew. The weight of water in the radiators shall count in the weight empty.

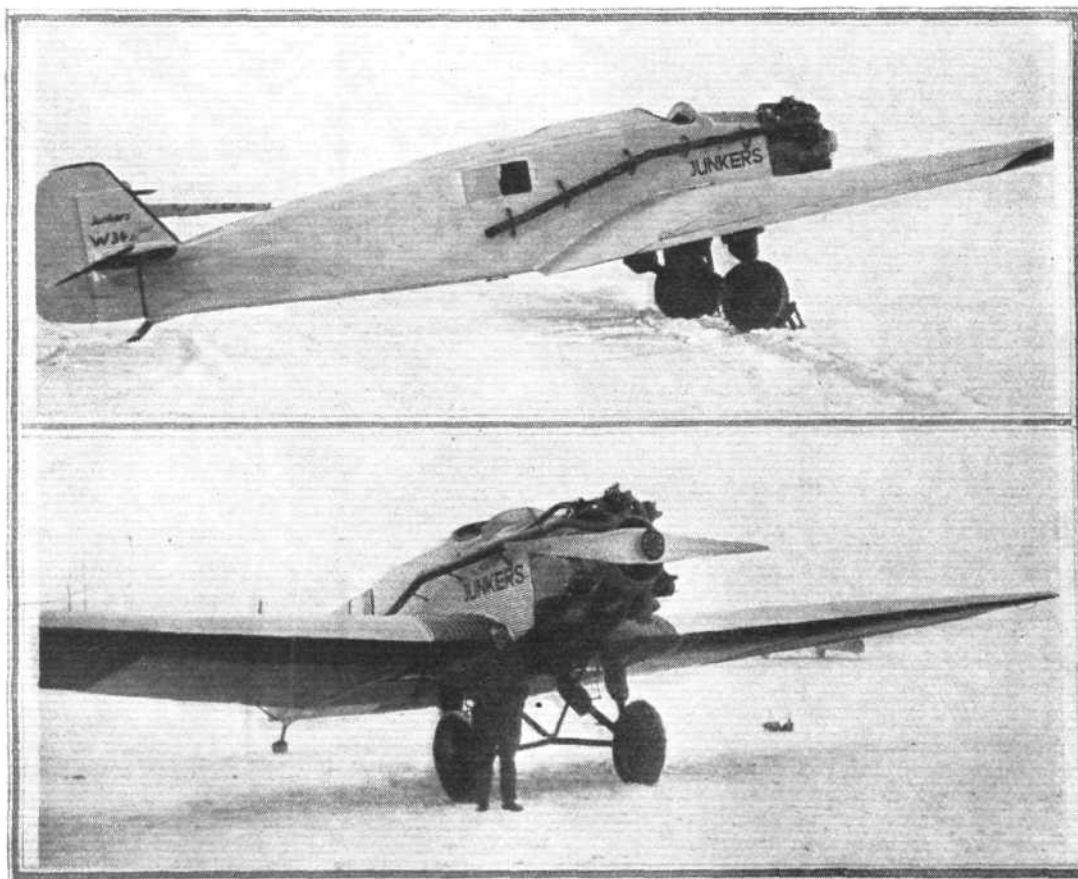
**Course.**—The course and stages will be the same as those for the King's Cup Race.

### Prizes

First prize (presented by Mr. J. D.

Siddeley) ..	Challenge cup and	£150
Second prize	do. ..	£75
Third prize	do. ..	£25

Regulations and entry forms can be obtained from the Royal Aero Club, 3, Clifford Street, London, W.1.



A "Jupiter" Engine Junkers for New Guinea. An Australian company, the New Guinea Gold Co., which is at present prospecting for gold in New Guinea, has acquired a Junkers W-34 monoplane, fitted with a Bristol "Jupiter" engine for the work. The mining area is situated 65 miles from the coast at an altitude of 10,000 ft. and owing to the difficult nature of the country a round trip to and from the mine area takes about three weeks by ordinary methods! The air trip takes about one hour. There is no possible landing place between the two aerodromes, so engine reliability is essential—hence the "Jupiter." (Note.—Our pictures were not taken in New Guinea!)



# THE ALL-AMERICAN AIRCRAFT SHOW AT DETROIT

April 14-21

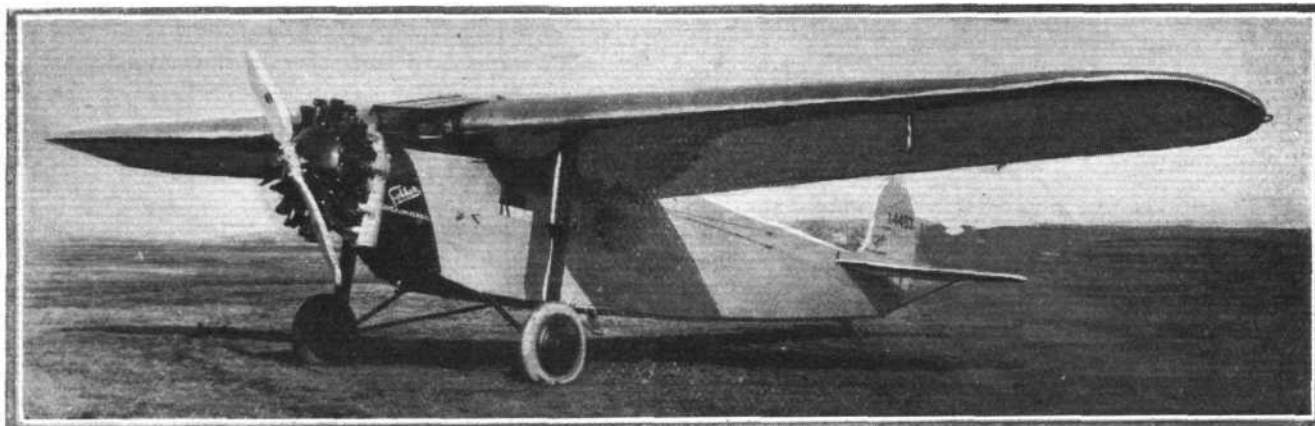
By ERIK HILDESHEIM

DETROIT, the centre of the automobile industry of the United States, has just staged in the Convention Hall a review of the American aeroplane industry, the present rapid development of which is in the nature of a "boom." As only commercial types are shown, this exhibition of the new world should lend itself to an interesting comparison with the coming one at Berlin, which will also be limited to civil aviation.

Nobody will dispute the right of the Detroit aero show to its all-American title on account of the 1909 type cross-

case of the planes, it has been thought that the inclusion of the sales prices will be of chief interest.

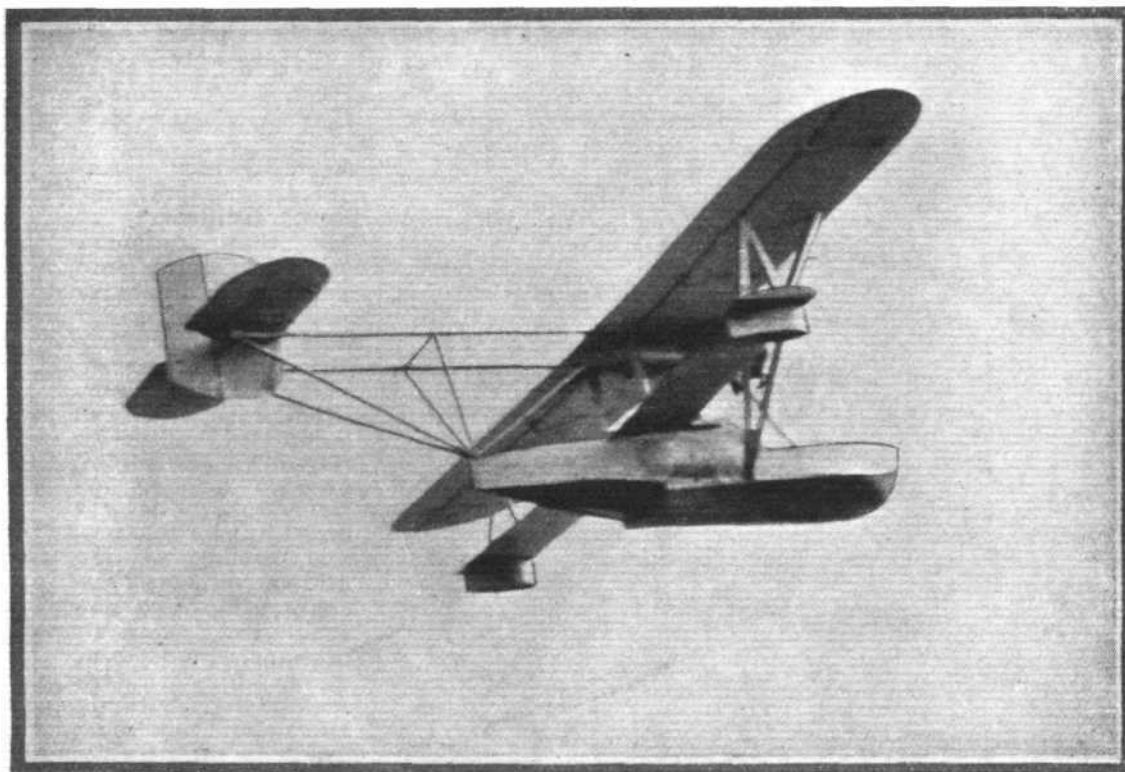
The writer has previously paid two visits to the United States, first during the war just before America broke with Germany. An aero exhibition was then held in New York, and the European lead as the result of the war progress, resulting from lavish expenditure of lives and money, was undeniable. This accumulated experience was handed over wholesale to America when entering the war. After the hostilities the States were no exception to the



AT THE DETROIT SHOW : The Fokker "Super-Universal," with Pratt and Whitney "Wasp" Engine.

Channel Bleriot monoplane included ; and it is certain that no other nation can at present repeat the effort of over 40 firms appearing with more than 60 types for unsubsidised private flying. No less interesting is the aero-engine situation that reflects the exhaustion of available cheap Curtiss OX motors. New low-powered engines of the radial

general practice of pointing out of other countries as pushing aviation more vigorously, in an endeavour to secure further Government support, and stir home manufacturers to increased activities. Afterwards the first American Schneider Cup victory was an impressive testimony to research work and developments in high-speed 'planes and engines in the



At the Detroit Show : The Eastman flying-boat, 80 h.p. Anzani, although a tractor sesqui-plane, revives the open girder tail booms.

type and four-in-line air-cooled engines can be, and have been, produced overnight almost ; but as the weak points that are always likely to show up can only be found out in actual service, probably no useful purpose would be served by taking down the various names before they have made one for themselves by actual consistent good service. In the

States ; and Europe took the lesson, just as Avimeta in France and A. V. Roe in England are now evidence of home manufacturers investigating for themselves whether the new cabin-type monoplane which has been developed in America is worth while following up.

Taken in alphabetical order, the names of the aircraft

At the Detroit Show : The Loening 4-passenger amphibian is engined by a Pratt and Whitney Wasp.



firms exhibiting at the Detroit aero show, the number of machines exhibited being given in brackets, were as follows :— Advance Aircraft Co. (5), Aero Craft Mfg. Co. (1), Alexander Aircraft Co. (3), American Eagle Aircraft Co. (1), Arrowing Airplane Co. (1), Atlantic Aircraft Corp (1), Bellanca Aircraft Corp. (1), Berliner Aircraft Co. (1), Buhl Aircraft Co. (2),

Aeronautical Engineering Corp. (1), B. F. Mahoney Aircraft Co. (1), Mohawk Aircraft Corp. (1), National Airways System (1), Niles Aircraft Corp. (1), Overcashier Aircraft Mfg. Co. (2), Paramount Aircraft Corp. (1), Pheasant Aircraft Co. (1), Pitcairn Aviation Inc. (1), Simplex Aircraft Co. (3), Stinson Aircraft Corp. (4), Stout Metal Airplane Co. (1), Swallow



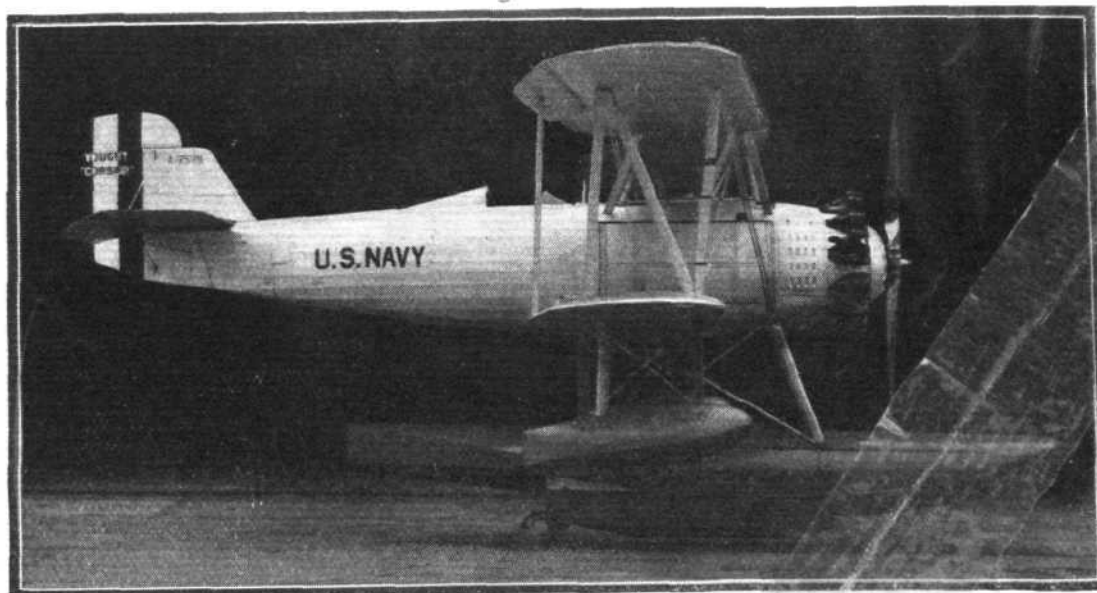
At the Detroit Show : Three-quarter front view of the Wallace "Touroplane."

Cessna Aircraft Co. (1), Central States Aero Co. (2), Chance-Vought Corp. (2), Chicago Aviation Co. (1) Driggs Aircraft Co. (1), Fairchild Aviation Co. (1), General Aeronautical Corp. (1), Gillis Aircraft Corp. (1), Halpin Development Co. (1), Hamilton Metal Plane Co. (2), E. C. Hurd (1), International Aircraft Corp. (2), Ireland Aircraft Corp. (2), Kreider-Reisner Aircraft Co. (1), Laird Airplane Co. (2), Lenert All-Metal Aircraft Co. (1), Lincoln Page (11), Loening

Airplane Co. (2), Travel Air Mfg. Co. Inc. (2), Taylor Bros. (1), Wallace Aircraft Co. (1).

Pre-war European aero-shows evidenced a variety of types, as inventors were not yet tied down by generally accumulated experience and, in an endeavour to meet the present heavy demand in America, designers and constructors have a similar free hand and apparently no difficulties in finding financial backing. One more similarity is that not even

The only military machine at Detroit is a Vought Corsair, which is exhibited as a landplane. It is here seen in its seaplane form.





AT THE DETROIT SHOW : The Bellanca Monoplane with Whirlwind Engine.

freaks are lacking. From a European point of view, some of the exhibited machines are undeniably of poor workmanship, or bear at least evidence of a rush job to get ready in time for the show. In the popular enclosed type it is difficult to understand how rigid celluloid plates can be used without any wiping or opening facilities to combat unfavourable meteorological conditions. On the other hand, there is no getting away from the fact that some of the types of the longer-established factories compare favourably with similar European models and that interesting and promising work has been turned out by some of the newcomers. The Josephine Ford, the Fokker triple-Whirlwind-engined monoplane from Byrd's Arctic expedition, now in Henry Ford's historical museum, is shown with broad wooden skis, next to the similarly motored Stout metal monoplane for his coming Antarctic expedition; and an opportunity to compare say a Moth or an Avian with a Waco or Eaglerock and their performances should certainly prove interesting.

One noteworthy observation is the predominance of the metal propeller, and then again most of the aeroplanes are fitted with the product of the Standard Steel Propeller Co., which is by now, in spite of the name, a duralumin product, both as regards the forged and machined blades with solid circular roots and the hubs, and the result of army development work. There are also a certain number of all-metal aeroplanes following general practice, but it can easily be observed that most efforts have been directed towards filling present needs by turning out straightforward welded steel fuselage and fabric-covered machines, rather than go in for original research work.

The Loening four-passenger cabin amphibian is a commercial adaptation of the well-known original American type, but the number carried seems small for this expensive Pratt and Whitney Wasp-engined machine. The sales price is \$24,700. Another amphibian developed for civil flying is the Amphiplane of the Ireland Aircraft Co., of Garden City,

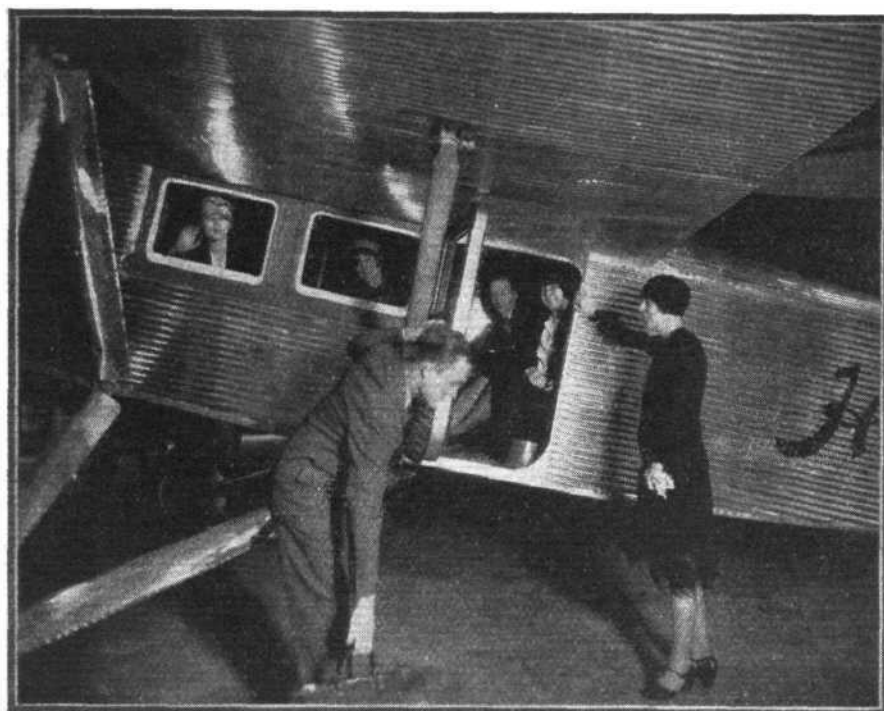
Long Island, which is the flying-boat type, similar to the Vickers Viking, and supplied either as a cabin job at \$15,200 or with open cockpit for \$14,600, without any difference in performance. A Whirlwind pusher-engine installation and a negative tail plane are used; the engine drives a rotary gear petrol pump with check valve from the accessories drive, in addition to which there is a hand-operated pump delivering through same pipe, *i.e.*, each pump will work through the other. A third flying-boat for private use is the Eastman from Detroit, which is of the tractor type with a short metal hull and strut tail of NC fashion in an apparent endeavour to keep down weight. The power plant is an 80 h.p. Anzani, and the selling price \$5,800.

Stinson shows a number of his familiar cabin monoplanes in various colour schemes for different customers, such as the Brown Lipe Gear and Union Trust Companies, and the Pilot Airplane Radio Laboratory. Five Waco biplanes are to be seen fitted with different power plants and shock-absorbing undercarriages. Fokker exhibits his Super-Universal with the Pratt and Whitney Wasp, and selling at \$19,340. This model may be characterized as a modern edition of the F3 with the present-used landing gear and surplus power. The Pitcairn Sport Mailwing is a straightforward one-bay biplane, selling at \$9,850, equipped with a Whirlwind engine. The Halpin Flamingo looks like a metal edition of the "Spirit of St. Louis," and is announced at a selling price of \$19,325, while another newcomer with a metal aeroplane is the Lenert monoplane with corrugated fuselage and plain wings. Flying demonstrations in Detroit at the end of the show, and a sale price of \$2,950, fitted with an OX engine are announced. Simultaneous flying demonstrations are also given by the Fairchild Corporation of their Caminez engine in a Waco. The Overcashier is one more of the new names to be met. This plane sells at \$3,500 with an OX5 engine. Driggs shows his little sport biplane, which has the usual cord suspension in the centre cross of the split-type



The Hurd Low-Wing Monoplane.





**AT THE DETROIT SHOW :** The Hamilton all-metal monoplane resembles the Junkers machines in construction and the Fokkers in general design.

undercarriage and V-type interplane struts. The Crusader is built by the Gillis Aircraft Corp. like a biplane edition of the Fairchild cabin monoplane, and is offered at \$7,950 with a 90 h.p. Siemens engine. The Pheasant, of the Packard Flying Service, is a conventional biplane selling at \$2,650, with an OX engine. The three-seater Aero-Coupe of the Aerocraft Co. turns out at \$6,500 with a 7-cylinder 110 h.p. Warren motor. The Lincoln-Page, of the usual one-bay biplane type, is priced at \$2,900 with an OX engine. The Taylor parasol monoplane, with three-strut wing-bracing, is listed at \$4,750 with the 90 h.p. Siemens. The Paramount Aircraft Corp. also shows a cabin biplane of ordinary type, and offered at \$6,985, this time with a 110 h.p. Scarab motor.

The Hamilton all-metal monoplane, which has already met with some success, looks like a duralumin edition of the Fokker type, and sells at \$21,000 with the Wasp engine. Several low-wing monoplanes are exhibited, such as the E. P. Hurd, which is the work of the German designer Hueb, who has been with the Albatros and Heinkel firms, and also acknowledges the DH 53 and Avia as prototypes. Fitted with a 60 h.p. Le Blond engine, it sells at \$3,000. The Gold Tip of the Niles Aircraft Corp. looks much like the Ford Flivver, and is offered at \$1,850 with a 3-cylinder Szekely S-R-3 motor. The Mohawk Aircraft Corp. has another touring model of this type on show with the pilot's and passenger's seats in offset tandem arrangement.

The Simplex Aircraft Corp. Red Arrow open and enclosed two and three-place monoplanes with struts to the undercarriage, are fitted with the 100 h.p. 5 cylinder Kinner aero-engine, and sell at \$3,750, \$3,950, and \$4,500 respectively.

The Keystone and Sikorsky firms exhibit only photographs; the latter specialises now in an enlarged edition of its amphibian with two Wasps, the first of the Whirlwind-engined prototype having been sold to the Andean National Corp. in Columbia. At the Curtiss stand, only literature is to be seen of the new Robin three-place cabin parasol monoplane with large fairing of the wing struts, which is to replace the Jenny and sell at \$4,000 with the OX engine, of which the

concern, together with the Robertson firm of St. Louis, holds 1,200. Further pictures are shown of two new aircooled Curtiss engines now completing the type tests. FLIGHT is privileged to bring the first preliminary particulars about them. The smaller one is of 170 h.p. developed in six cylinders arranged in two rows of three. The weight is 420 lbs., the number of revolutions per minute 1,800, and the engine will be known as the Challenger. The other is an interesting addition to the types of air-cooled radial engines, being the "Hex" now to be named "Chieftain." It has been produced with the co-operation of the U.S. Army, and has 12 cylinders, arranged each two in line. Thus a front view gives the appearance of a six-cylindered engine, and it is claimed that no difficulties have been experienced in cooling the rear cylinders. 600 h.p. is developed at 2,100 r.p.m. The weight is 900 lbs., and the overall dimension 45 in. There are two inlet and exhaust valves each per cylinder.

Packard labels its 24-cylinder model the world's most powerful aero engine. The normal rating is 1,200 h.p., or 1,500 h.p. when supercharged. A comparison of the Pratt and Whitney Wasp and Hornet models shows that they are identical but for the different cylinder dimensions. The Cyclone, exhibited at the Wright Aeronautical Corporation stand, develops 525 h.p. at 1,900 r.p.m. for a weight of 760 lbs. and has nine cylinders of 6 in. bore by 6½ in.

stroke with a total cubic capacity of 1,753 cub. in. The compression ratio is 5.4:1. Just as the conversion of the Le Rhone rotary engine into a stationary radial model has been undertaken by one or two American firms, the conversion of the 260 h.p. Salmson watercooled engine into an air-cooled radial, retaining only the crankcase, crankshaft and connecting rods, has now been carried out with the stock in America by the Menasco Motor Co. of Beverly Hills, Cal. A specimen of this "Super-Salmson" developing 260 h.p. at 1,550 r.p.m., is on view at the Alexander Eaglerock stand. A newcomer to the aero engine business is the Velie Automobile Co., while Le Blond is the erstwhile Aircat and is produced with three cylinders at 40 h.p. selling for \$785, as a six-cylinder model of 60 h.p. listed at \$985, and the seven-cylinder type of 90 h.p. costing \$1,285. Amongst the clients the Vulcan Aircraft Co. of Portsmouth, Ohio, is given with their American "Moth" parasol monoplane. Edot Brewster and Hamilton duralumin floats are to be seen at various stands such as Fokker and Vought, and fitted amongst others to the Waco, Laird, Hamilton, Eaglerock and Swallow biplanes.

Actually makers of military aircraft were not barred from participation, but it is understood that firms like Boeing and Curtiss were too busy to prepare show machines. Chance Vought is thus alone in upholding war honours with the Corsair in its land edition. This standard two-seater observation fighter N-strut type biplane with "Wasp" engine, has a maximum speed at sea level of 151 and 147 miles respectively as land and seaplane, while the corresponding figures are 48 and 50 m.p.h. landing speed, initial climb p.m. and in 10 min. 2,100, 1,900, 13,900 and 12,000 ft. service and maximum ceiling 22,500, 21,000, 27,500 and 22,900 ft. The range at cruising speed is 580 and 520 miles.

The most noteworthy feature is the mounting of the two petrol tanks on the fuselage as visible in the picture, which the makers maintain to be a less vulnerable position than the ordinary one. Provision is made for the fixing of two non-synchronized guns in the cabane outside the propeller area.

### Shanghai Bombed

THERE was a brief air raid on Shanghai on May 3. A northern machine appeared over the city unexpectedly and bombed an arsenal, but no one was killed. Two seaplanes were sent up to attack.

### "Jockey Pilots"

OUR American contemporary *Aviation* in a recent issue made a novel suggestion regarding the size of future air pilots. It pointed out that, while designers devoted countless time and effort in refinements in design which would save a

few pounds weight and would cut off a few inches from the frontal area of the machine, yet they had to design their plane to fit a pilot probably over 6 ft. high and weighing over 200 lbs. They therefore suggest that in the future pilots should be selected from men having the same general characteristics as horse-racing jockeys, and refer to the results obtained in England with the D.H. "Tiger Moth"-cum-Capt. Broad. In time, no doubt, a special "breed" of "jockey pilots" could be developed especially for high-speed aircraft!

# PRIVATE



# FLYING

A Section of **FLIGHT** in the Interests of the Private Owner, Owner-Pilot, and Club Member

## TOURING THE HANDLEY-PAGE SLOT

THE Handley-Page Company has received numerous inquiries from foreign Governments and others interested in aeronautics concerning their slotted-wing device. As a result they have decided to demonstrate it on the Continent shortly. Squadron-Leader T. H. England, technical adviser and test pilot to the company, hopes to leave England on Friday, next, May 11, and visit the following countries; France, Spain, Switzerland, Italy, Yugo-Slavia, Roumania, Hungary, Austria, Czecho-Slovakia, Germany, Poland, Holland and Belgium. The tour will take between two and three months.

He will fly a D.H. "Moth X" (Cirrus engine) which the De Havilland Company kindly placed at his disposal, with the automatic slot fitted to the top wing.

This type of light 'plane is admirably adapted to such a tour, as the service organisation which the De Havilland Company has arranged will facilitate progress throughout the Continent, and render the worry of spare parts unimportant.

Apart from his own flying demonstrations at the numerous foreign aerodromes, Sqdn.-Ldr. England hopes that, with the co-operation of the Government and civil authorities, test pilots will be able to try out the machine for themselves. In order that such demonstrations may be thoroughly convincing it has been arranged to make the slots inoperative by a simple device. This will necessitate a very brief landing first during each test flight.

A comparison of stalled flight with and without the slots will then be clearly revealed to each passenger or eye-witnesses.

It is claimed that 85 per cent. of the serious accidents can be eliminated by this slot, as most of the accidents are due to pilots' errors. The R.A.F. have now adopted it as standard for all army co-operation machines, general purpose machines, torpedo carriers and single-engined day bombers. It has also been tried on training and heavier machines, including flying boats.

At Cricklewood aerodrome on May 7, Sqdn.-Ldr. England and Capt. J. B. L. H. Cordes demonstrated the D. H. "Moth" with the slotted wing before several foreign air attachés.

Each of the latter was taken up in the front cockpit to experience the effect of stalled flight with the slot.

The machine was fitted with a special undercarriage similar to that used by Capt. de Havilland during his exhibition at Stag Lane, described in our columns on March 22, this year.

Sqdn.-Ldr. England's first stalled landing on the very bumpy aerodrome in a wind which at ground level was 20 m.p.h., was rather heavy, and then Capt. Cordes made a little heavier stalled landing on the second flight with Sqdn.-Ldr. Kituba, Air Attaché for Czecho-Slovakia, as passenger, and the special undercarriage gave way. The De Havilland Company immediately came to the rescue when appealed to. In a short time another D.H. "Moth" flew over from Stag Lane aerodrome piloted by Capt. Broad. In the front cockpit was Mr. J. Carberry, the well-known pilot, who flew out to Kenya, E. Africa, a few months ago in his Fokker "Universal" monoplane.

With this machine the demonstration was continued by Sqdn.-Ldr. England and Capt. Cordes, and they flew continuously for two hours or more, taking up nearly all the eye-witnesses, and giving a very convincing display. It was uncanny to see the machine floating and swaying in the air in its stalled descents from a few hundred feet without putting its nose down once. When doing a stalled turn the wing could still be raised by the usual control.

Any passengers who happened to be pilots were allowed to take control if they desired, whilst flying with the demonstrators.

Capt. P. Sbernadori, an officer of the Royal Italian Air Force, who has brought a large Fiat BRI, torpedo and day bomber to this country to have the slots fitted on, flew the D.H. "Moth" alone and was very satisfied with his experimental flight.

The slight mishap to the undercarriage delayed Sqdn.-Ldr. England's intended departure for Europe the following morning. The Cirrus engine and the wings of the damaged machine were taken down and assembled on another fuselage.

Capt Cordes has recently joined the Handley-Page Company. He was, lately, a flying instructor at No. 5 Flying Training Schools, Sealand.

## NEW PRIVATE OWNERS

### New List of Owners

Owner	Machine	Identification Letters	Registered
R. J. Bunning	D.H.6	G-EBWG	6.2.28
Miss W. S. Brown	Avro "Avian III"	G-EBVZ	8.2.28
O. S. Baker	D.H. "Moth X"	G-EBWA	23.1.28
Capt. H. Harrington Balfour	D.H. "Moth X"	G-EBWX	10.3.28
A. G. Cooper	Avro 504 K	G-EBLA	—
Sqd./Ldr. C. S. Wynne-Eyton	D.H. "Moth X"	G-EBVJ	16.1.28
E. R. King	Austin "Whippet"	G-EAPF	2.5.28
Capt. J. S. Lord	Avro 548	G-EAFH	17.2.28
Wing-Com. E. R. Manning	Westland "Widgeon III"	G-EBRN	—
Miss C. R. Leathart	Sopwith "Grasshopper"	G-EAIN	24.2.28
Lt. Com. H. C. Macdonald	D.H. "Moth X"	G-EBVX	23.1.28
F. A. Irving Muntz	D.H. "Moth X"	G-EBWT	10.3.28
G. A. R. Malcolm	D.H. "Moth"	G-EBNO	1.2.28
H. Petre	D.H. "Moth X"	G-EBWZ	13.3.28
H. Murray-Phillips	D.H. "Moth X"	G-EBWD	2.3.28
J. Tattersall	Avro "Avian III"	G-EBWK	7.3.28
K. V. Wright	D.H.53	G-EBXM	—
C. W. G. Wood	D.H. "Moth X"	G-EBXS	27.4.28
Dr. M. C. Wall	Avro 504 K	G-EBWO	—
A. F. Wallace	D.H. "Moth X"	G-EBPM	6.3.28

WITH this article will be found a list of twenty new private aircraft owners. It is interesting to note that they include two lady owners, Miss W. S. Brown, of the Lancashire Aeroplane Club, and Miss C. R. Leathart, of the Newcastle Aero Club. The owner of G-EBVX, Lieut.-Com. Macdonald, was the officer who recently flew alone to India from England immediately after learning to fly at Stag Lane Aerodrome, London. Dr. M. C. Wall, who has bought an Avro 504K, was one of Col. Henderson's pupils at Brooklands, and was granted his ticket (No. 8241) by the Royal Aero Club, on April 25 this year.

One or two of the previous private owners have apparently sold their machines. Mr. C. E. Pitman no longer has the D.H. "Moth X" "UZ." The D.H. "Moth X," which was won in a ten-shilling raffle by Mrs. H. J. Jackaman some time ago, is now registered in the name of Lieut. Glen Kidston, who originally had "VJ" of the same type, which, in turn, has become the property of Sqdn.-Ldr. C. S. Wynne-Eyton. Mr. H. E. Hamer has become a convert to the same model. He registered his first D.H. "Moth" as far back as April 22, 1926. Mr. Nigel Norman has precedence as the possessor of a slotted-wing machine with his "Moth" "WY"; and Lord Ossulston is now an "X" type owner with "WL," which he registered on March 2, 1928. Mr. Norman Jones has also made a change. His A.N.E.C. "JO" has been superseded by the "X" type ("WI"). It is called "Camberwell Beauty."

Wing-Commander E. R. Manning joins the new list with his Westland "Widgeon III," G-EBRN, in which he is trying to reach Australia. He started well, and broke fresh ground



for the England-Egypt section by avoiding the Italian coast, Sicily and Malta, and crossing the Mediterranean over Corsica and Sardinia. A damaged tail skid unfortunately delayed him at Tunis, North African Coast, and now the latest report states that he crashed at Homs, where he flew to from Tunis. If this is true it is particularly unfortunate, because as an Air Force Officer on leave he has not unlimited time at his disposal in which to reach his destination, and certainly no margin for serious delays. Happily he was not injured in the crash.

There are over forty owners of D.H. "Moths" in this

country. With a few exceptions, the lists of owners published in our columns at appropriate intervals last year remains intact. The total varied between seventy and eighty. Since the beginning of this year about twenty new owners have registered. There is a steady exchange of aircraft, particularly amongst the ancient types, that is, those not in the class of the modern light 'plane. A natural tendency observed is the preference for the latter. As the rate of production increases and designs are modified, thereby creating new models, there will be wider opportunities for obtaining second-hand light 'planes.

## AERODROMES OF ENGLAND

In our article on the subject of aerodromes last week we mentioned the assistance given by the Air Ministry to local authorities who contemplate acquiring sites for aircraft traffic. We generalise here the particulars given:—The soil should be medium to light. Heavy soils are unsuitable and become sticky in winter; also grass grows too freely and drainage is difficult. The land should be level and preferably on a plateau, whilst if the latter slopes slightly from the centre to the boundaries on all sides it is a desirable feature. It is more likely to present low approaches into every wind. The maximum gradient should not exceed 1 in 40. Ridge and furrow should be avoided as that usually indicates a naturally wet soil, and levelling is expensive and a system of land drainage is a necessity.

The ideal aerodrome site should be close to the centre of the city which it serves, but in most cases this is rendered impossible by other considerations, and when this is the case there should be good communications either by rail, road, tramways and buses, preferably all four. A chosen site should afford at least 1,000 yards' run into any wind. Such sites are difficult to find in this country, and there should be preference given to a site giving that length of run, at any rate, in the direction of the prevailing wind.

A surrounding neighbourhood should be free from natural fog, town fog and smoke, having regard to the local prevailing wind, the proximity of low-lying or marshy ground, the existence of rivers and lakes and large industrial plants.

Where selection is possible, other considerations being

equal, it is preferable to lay out an aerodrome on the side of the city from which the majority of air routes operate, so that flying over thickly populated areas is avoided as far as possible. If possible, an area should consist of large fields, as the work of removing hedges and levelling will be saved, and if it is permanent pasture it is a great asset, especially if time is valuable.

Obstructions in the vicinity of a site like church spires, chimneys, or sharply rising ground near the boundary, are a serious disadvantage, particularly if night flying is contemplated, as night markings will be necessary. High trees can generally be removed by arrangement. Adjoining large fields are always an advantage for forced landings. Supplies of water and electric current should be available.

The price of the land is an important factor and is affected by the ownerships on the selected site and severance entailed.

It might be added that one of the illusions which deter many local authorities when contemplating the project is the enormous outlay necessarily entailed in constructing an aerodrome. They imagine that vast accommodation on a site is one of the primary essentials; but in this stage of commercial and private flying this is not required. If a suitable site is obtained and it is always kept fit for landings, that is adequate. No local authorities need fear the contrary. Incidentally, if information concerning fully equipped aerodromes is desired, a guide can be found in "Commercial Air Transport," by Lieut.-Col. Ivo Edwards, C.M.G., and Capt. F. Tymms, M.C.

## LIGHT 'PLANE CLUBS

*London Aeroplane Club*, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.  
*Bristol and Wessex Aeroplane Club*, Filton, Gloucester. Secretary, Capt. C. F. G. Crawford, Filton Aerodrome, Patchway.  
*Hampshire Aero Club*, Hamble, Southampton. Secretary, H. J. Harrington, Hamble, Southampton.  
*Lancashire Aero Club*, Woodford, Lancs. Secretary, C. J. Wood, Oakfield, Dukinfield, near Manchester.  
*Midland Aero Club*, Castle Bromwich, Birmingham. Secretary, Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.  
*Newcastle-on-Tyne Aero Club*, Cramlington, Northumberland. Secretary, A. H. Bell, c/o The Club.

*Norfolk and Norwich Aero Club*, Mousehold, Norwich. Manager, F. Gough, The Aerodrome, Mousehold, Norwich.  
*Nottingham Aero Club*, Hucknall, Nottingham. Hon. Secretary, Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.  
*The Scottish Flying Club*, 101, St. Vincent Street, Glasgow. Secretary, Harry W. Smith.  
*Southern Aero Club*, Shoreham, Sussex. Secretary, C. A. Boucher, Shoreham Aerodrome, Sussex.  
*Suffolk Aeroplane Club*, Ipswich. Secretary, Maj. P. L. Holmes, The Aerodrome, Hadleigh, Suffolk.  
*Yorkshire Aeroplane Club*, Sherburn-in-Elmet, Yorks. Secretary, Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.

### LONDON AEROPLANE CLUB

Report for week ending May 6.—Flying time, 70 hrs. 40 mins.; dual instruction, 50 hrs. 5 mins.; solo, 20 hrs. 35 mins.

Dual instruction.—With Captain S. L. F. St. Barbe: J. A. Murphy, J. R. Rymill, P. A. Wills, G. A. Stedall, J. V. K. Watson, E. R. Andrews, R. L. Portway, A. S. Millar, Miss Wilson, Miss James, R. Drysdale-Smith, J. R. A. Stroyan, R. Ward, F. C. Fisher, G. C. Gotheridge, L. G. Sykes, Dr. Cook, H. B. Saunders, B. L. Middleton, G. Lyon, I. D. Lloyd, A. D. Blumlein, R. Richmond-Brown, S. Hansel, E. Davis, J. A. Crane, Miss Johnson, H. Sutton.

With F. R. Matthews: E. R. Andrews, T. A. Browne, A. J. Richardson, B. L. Middleton, S. Hansel, J. A. Murphy, H. R. Presland, R. O. Wilcoxon, G. E. Clair, Miss Fletcher, P. A. Wills, G. Peckham, R. Ward, A. S. Millar, R. Richmond-Brown, Miss Wilson, H. Sutton, G. Haydon, Mrs. Wilcoxon, Miss James, J. R. A. Stroyan.

Solo Flying.—W. Roche-Kelly, R. Sanders-Clark, J. J. Hofer, R. Ward, F. C. Fisher, P. W. Hoare, J. A. Brewster, B. B. Tucker, J. C. V. K. Watson, Lord M. Douglas-Hamilton, H. B. Michelmores, Dr. Cook, R. C. Presland, Major Beaumont, E. E. Stammers, C. Paul, H. M. Samuelson, W. L. M. O'Connor.

Total flying time for the month of April.—Dual instruction, 95 hrs. 10 mins. "A" licence soloists, 33 hrs. 55 mins. Practice soloists, 10 hrs. 40 mins. Passenger flights, 14 hrs. 30 mins. Test flights, 11 hrs. 50 mins. Total, 166 hrs. 5 mins.

The flying time for the month of April just exceeds that for the corresponding month last year, and the Instructors St. Barbe and Matthews are to be congratulated on their first month's work together.

Hampshire Air Pageant.—The Club will be sending down a "Moth" to the Hampshire Air Pageant on May 28. Members wishing to take part are requested to forward their names to the Secretary.

### HAMPSHIRE AEROPLANE CLUB

Report for week ending May 6.—Total flying time, 42 hrs. 10 mins. Dual instruction, 15 hrs. 15 mins. "A" pilots, 12 hrs. 55 mins. Solo, 4 hrs. 30 mins. Passenger flights, 8 hrs. 25 mins. Tests, 1 hr. 5 mins.

Instruction with Flight-Lieut. Swoffer: Mr. Westlake, Sir T. Munro,

Nash, Wroughton, Courtney, Schriber, Scott-Hall, Mandeville, Powell, Hamilton, Richardson, Starkey, Des Graz, Major Jenkins, Goldman, Flight-Lieut. de Burgh, Crook, Mrs. Crook, Collier, Wallace, Miss Grace, Chaffey, Graham-Gibbs.

Passengers with Flight-Lieut. Swoffer: Mr. Jenny, Mr. Graham-Gibbs, Lenny, Ogston, Dickson, Lovett, Storey. With Capt. Kirby: Miss Smallwood, Miss Redwood, Mrs. Robinson, Mr. Craske, Nash, Miss Swoffer, Mrs. Holmes, Miss Hamilton, Master Crook, Mr. Boxall, Westlake, Gillette, Master B. Crook, Mrs. Schoemacker, Fawer. With Mr. Fagan: Miss Collier, Nash, Bull, Jarver. With Flight-Lieut. de Burgh: Mrs. de Burgh.

We created another Club Record by putting in 17 flying hours for Sunday.

### MIDLAND AERO CLUB LIMITED

Report for week ending May 5.—The total flying time 18 hrs. 1 min. Solo, 5 hrs. 15 mins.; dual, 8 hrs. 15 mins.; passenger, 3 hrs. 50 mins.; tests, 41 mins.

Dual instruction (With Flight-Lieut. T. Rose): E. P. Lane, W. M. Morris, S. G. Hall, S. Duckitt, G. E. C. Hill, H. Coleman, T. H. Drury, A. E. Coltman, Capt. J. C. Chaytor, T. N. Khasri.

Solo.—R. L. Jackson, W. M. Morris, E. D. Wynn, W. Swann, H. J. Willis, J. Rowley, S. H. Smith, H. Tipper, E. P. Lane, R. D. Bednell, G. Robson. Passengers.—R. Aspinall, M. Turner, J. L. Gilbert, L. V. Sidgwick, W. H. Swann, J. Cobb, J. H. Moore.

On Sunday, Messrs. W. M. Morris and E. P. Lane were launched solo and both put up a creditable performance.

On Friday, Flight-Lieut. Rose flew L.W. to Filton for the Bristol Air Pageant. Mr. H. J. Willis who represented the club in the short Handicap Race for the "Selfridge" Cup, won the race at an average speed of 87 m.p.h.

Mr. W. H. Sutcliffe (late Sergt.-Pilot, R.A.F.) has been appointed Assistant Instructor, and took up his duties on Sunday.

The new "X" Moth, very kindly presented to this Club by the proprietors of the Wolverhampton "Star" newspaper, is being delivered this week.

### NORFOLK & NORWICH AERO CLUB

Report for week ending May 6.—Total flying time, 16 hrs. 40 mins. Instruction with Mr. Fry:—Messrs. C. Bethell, C. Cleasy, H. Neave, A. G. Woods, G. Barker, C. Girling, A. A. Rice, R. Hare, A. J. K. Finch, E. Lambert, G. Surtees.



Soloists:—Messrs. W. A. Ramsay, F. Gough, R. Potter, W. P. Cubitt, N. Brett, H. Pank, C. Gowing, R. Harmer, E. Lambert, R. W. Moore, G. F. Surtees.

Passengers:—34.

We are going to be very busy the next month or two with various local shows at which we intend giving flying demonstrations by special request. This looks healthy for aviation when the public ask for flights. Well, we are going to give it to them as often as we can, and if the prevailing weather continues, splendid progress will be made.

### NOTTINGHAM AERO CLUB

REPORT for week ending April 27.—Total flying time, 24 hrs. 25 mins. Total dual time, 14 hrs. 40 mins. Total solo "A" time, 5 hrs. 20 mins. Total solo, under instruction, time, 3 hrs. 15 mins. Total passenger time, 15 mins. Total tests time, 55 mins.

Passengers (with Mr. B. Martin): Messrs. H. Williams, J. Selvey and R. Wyde. With Mr. A. C. Ball: Miss Wardle, Miss Harris and Mr. Banwell. With Mr. R. A. Blake: Miss Liddiard, Miss Healey, Messrs. W. Mackichan and B. B. Mackichan. With Mr. H. Seely-Whitby: Mr. Paulson. With Mr. H. A. Hallam: Mr. Hugh Kay. With Mr. C. Cox: Mr. B. Pilgrim. With Mr. Cyril Sands: Messrs. M. Rook and R. Dickson. With Mr. H. W. Wilcox: Messrs. W. P. and J. W. Heath.

Dual instruction with Mr. B. Martin: Messrs. Bradley, Selvey, Ashworth, Weldon, Lucas, Hancock, Challand, Moore, Pratt, Green, Austin and Lazzerini.

Solo "A" Licence: Messrs. Ball, Blake, Whitby, Hallam, Cox, Sands, Wilcox and Paul.

Solo, under instruction: Messrs. Ashworth, Pilgrim and Coles.

Our congratulations to Harold Ashworth, who completed his first solo in excellent style. We are competing at Bristol on May 5, Mr. Cyril Sands will take part in the Balloon-bursting Competition and Mr. B. Martin in the Open Handicap Race. We sincerely hope the weather will be really fine for the meeting. A large number of our members have promised to attend.

### SCOTTISH FLYING CLUB, LTD.

REPORT for the month of April.—The month of April saw the first bunch of our "ab initio" pilots coming forward for their first solo flights, and, as is usual in such cases, undercarriages and propellers suffered. Nevertheless, a good number of hours were flown as will be seen from the statistics appended. In all, five "ab initio" members secured their licence, they being Messrs. Harrington, McNab, Rushton, Downing and Young. Besides these, four members who had flown before got their licences, these being Messrs. Yuill, Horsburgh, Donald and Lang.

For a good deal of the time, the usual April weather prevailed, and the aerodrome was more like a bog than anything else: and it is a wonder that there were not more minor accidents than there were. On Saturday, the 28th, an Air Force machine very unkindly taxied into "G-EBVT," while it was reposing peacefully on the ground, causing considerable damage which will put this machine out of action for some time.

The Ladies' Committee, as usual, have been very active, and they are at present engaged upon the organisation of a Garden Fête, to take place on June 2, at Crosslees, Thornliebank. They are arranging for a large number of attractive amusements, and it is hoped that there will be a large attendance.

The statistics for the month are as follows:—

Total hours flown	125.35
Number of members under instruction	55
Number of solo flights	49
Total number of actual flights undertaken	280
Number of day on which flying was possible	25
Number of pupils who secured "A" Licence	9

The reduction in the number of pupils under instruction is due, to a large number of these having secured the licence and they are therefore not entered in the statistics. The two Moths were only in active operation together on three days. The rest of the month, only one Moth was in operation, owing to minor accidents of one or the other.

### SUFFOLK AND EASTERN COUNTIES AEROPLANE CLUB

REPORT for week ending May 5.—Flying time, 10 hrs. Instruction, 3 hrs. 50 mins. "A and B" Pilots, 3 hrs. 25 mins. Soloists, 1 hr. 40 mins. Passenger flights, 45 mins. tests, 20 mins.

Dual instruction (with Mr. Lowdell): Miss Sylvia Edwards, Miss Rhodes, Dr. Mildred Yate, Mrs. Young, Dr. Dunn, Messrs. Hanson, Goodwin, Smith, and Marriage. Soloists: Messrs. Brown, Hanson, Jolly, Beck, and Verney. "A and B" Pilots: Dr. Sleight, Messrs. Prentice and Schofield. Passengers (with Mr. G. E. Lowdell), 4; (with Mr. C. N. Prentice) 3.

Dr. Mildred Yate and Mrs. Young began their course of instruction during the week. One new pilot and one new associate member were enrolled during the week and several inquiries have been received from prospective members.

A routine renewal of control cables on RE and a difference of opinion between a tail skid and the aerodrome somewhat curtailed instructional work during the week.

### FROM THE FLYING SCHOOLS

#### The De Havilland Flying School, Stag Lane Aerodrome

REPORT for week ending May 6.—Total flying hours, 109 hrs. 35 mins. Instruction: Dual, 57 hrs. 40 mins.; solo, 35 hrs. 45 mins. Other flying, 16 hrs. 10 mins.

Four pupils carried out successful first solos and one pupil obtained his "A" licence.

Six new "Moths" were tested during the week.

#### Henderson Flying School, Ltd., Brooklands Aerodrome.

REPORT for week ending May 3.—Total flying time, 33 hrs. 5 mins.; solo 8 hrs. 40 mins.

Dual (with Col. G. L. P. Henderson), Miss Kidston; (with Mr. H. D. Davis), Messrs. Hughes, Allen, Hsiao, Quilter, Milson, Dr. Wall, Whiteley, Mitchell, Habsburg, Dawson; (with Mr. A. E. Golds), Payne, Crabtree, Mitchell, Hughes, Dr. Forsyth.

Mr. Quilter has now passed all his flying tests for his R.A.C. certificate and holds the school record for height on his test flight.

Mr. Hsiao, who had considerable difficulty in his early stages, treated his first solo flight as an excellent approach and 3-point landing.

Col. G. L. P. Henderson, has now commenced active operations at Brooklands.

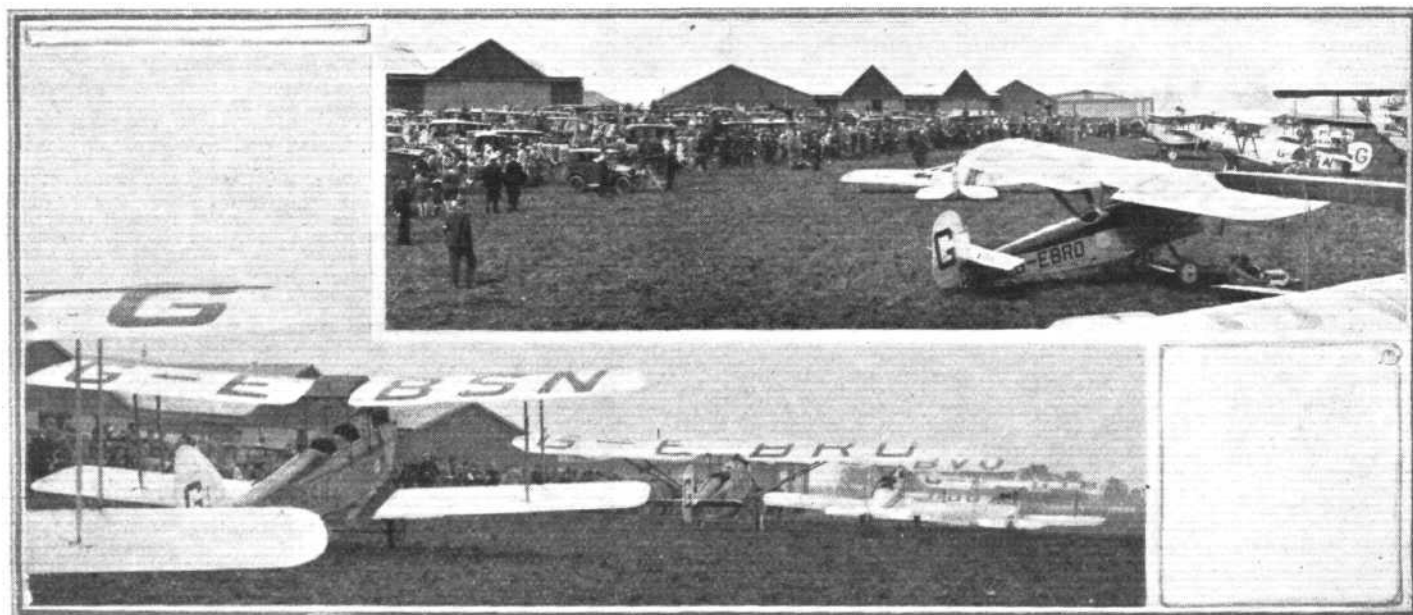
## THE BRISTOL AIR PAGEANT

Some 30,000 Spectators Watch Last Saturday's Meeting

TAKING it all around, the fates were kind on the occasion of the Aerial Pageant and R.A.F. Display organised by the Bristol and Wessex Aeroplane Club at Filton Aerodrome, Bristol, on May 5. The attendance was very good indeed, and the weather, except for one or two thundery showers, was excellent. The public enclosures had been arranged along three sides of the aerodrome, so that from all of them,

the cheapest as well as the most expensive, it was possible to see the machines clearly. In addition, loud speakers helped to keep visitors informed of what was going on, and the announcer, Capt. Brewer, M.C., performed his difficult task remarkably well, his comments being very apt and his Gordon Bell stories much appreciated.

Present on the aerodrome throughout the meeting were a



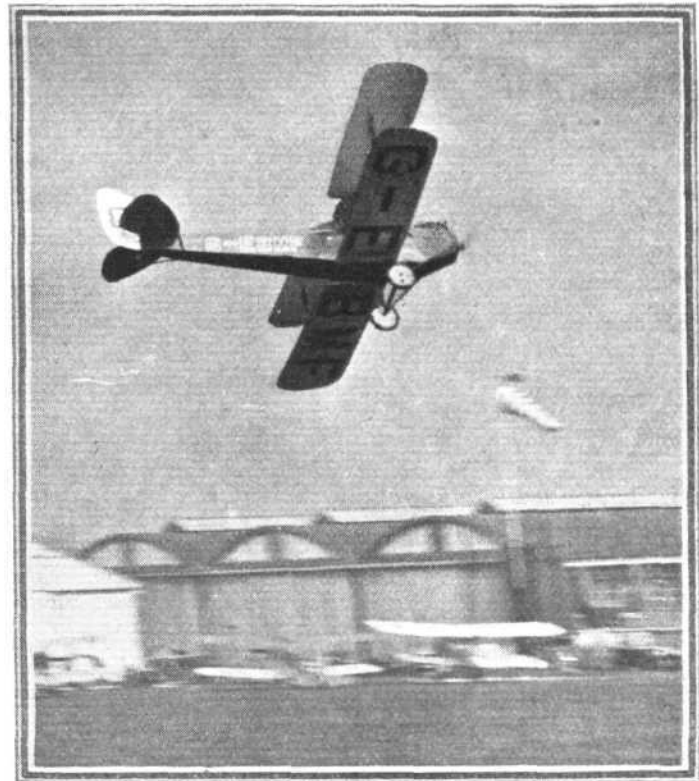
[ "FLIGHT" Photographs ]

THE BRISTOL AIR PAGEANT: Above, a general view of the car park and some of the aeroplanes. Below, a portion of the "Parade." Nearest the camera is a de Havilland "Cirrus-Moth." Ahead of that a Westland "Cirrus-Widgeon," an Avro "Cirrus-Avian" and a Blackburn "Genet-Bluebird."



["FLIGHT" Photograph]

**Winning the Talbot O'Farrell Race :** Mr. Uwins crossing the finishing line on his Bristol "P.T.M." biplane with Bristol "Lucifer" engine. His average speed was 109 m.p.h.



["FLIGHT" Photograph]

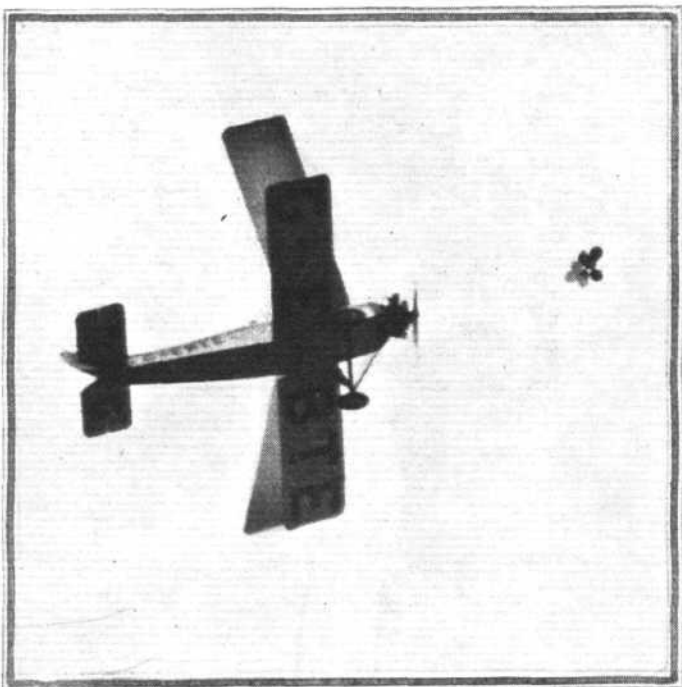
**Flying in a Thunderstorm :** Mr. S. F. Mathews during the Talbot O'Farrell Race, flying "Moth" MF, an old-timer with Mark I "Cirrus" engine.

number of distinguished personages, including the Duke and Duchess of Beaufort, the Lord Mayor and Lady Mayoress of Bristol, Col. H. C. Woodcock, D.L., M.P. (President of the Club), Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation (minus moustache), and Col. Sir F. McClean.

The proceedings opened at 2 p.m. with a parade and fly-past of various types of machines, including a Bristol "Cherub-Brownie," a Halton "Cherub-H.A.C." (which had been converted into a parasol monoplane by removing the bottom wing), a Blackburn "Genet-Bluebird," an Avro "Cirrus-

Avian," a Westland "Cirrus-Widgeon," a de Havilland "Cirrus-Moth," a Parnall "Genet-Imp," a Bristol "Lucifer-P.T.M.," a "Clerget-Avro," and finally, a Handley Page "Hampstead" with three Bristol "Jupiter" engines, which had come down to give Imperial "joy-rides."

The Surrey Flying Services were busy carrying passengers, having pitched their tent close to the largest enclosure, from which a steady stream of people kept the machines busy throughout the day, the machines going up and coming down



["FLIGHT" Photograph]

**Balloon "Strafing" :** Flight-Lieut. Bonham Carter well on his target in the Parnall "Genet-Imp." The swept-back top plane of this machine caused an onlooker to describe it as "An 'Autogiro' with one vane seized up."



["FLIGHT" Photograph]

**Demonstrating the "Sploth" :** Sqdn.-Ldr. England giving a demonstration of "How not to fly," on the de Havilland "Cirrus-Moth" with which he is shortly starting a tour of Europe.



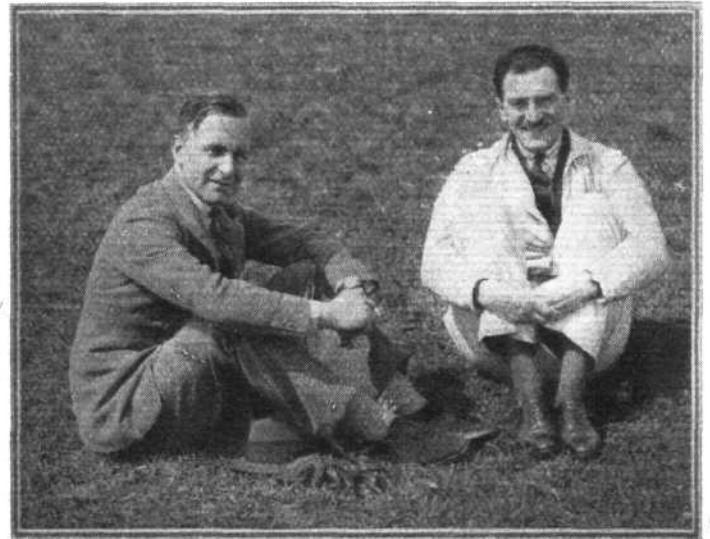
["FLIGHT" Photograph]

**A Private Owneress at the Bristol Meeting: Miss Winifred Brown, seated in the cockpit of her "Cirrus-Avian."**

with that almost monotonous, but consistently safe, regularity which one has come to expect from this firm.

The first race of the day was a short handicap for the Selfridge Cup and a purse of £25. The winner of this race also received five points, the second three points and £10, and the third one point and £5, the points counting towards Inter-Club Challenge Cup presented by the Society of British Aircraft Constructors. The course was a triangular one of

approximately 16.7 miles, and an innovation had been introduced in the arrangements of the turning points. Instead of the single turning point hitherto used, there were two at each corner of the triangle, so that the triangle was in reality a hexagon. In other words, the sharp corners of the triangle



["FLIGHT" Photograph]

**In happy mood: Mr. Norman Jones and Dr. Whitehead Reid swapping experiences. Both are private owners.**

had been cut off, so that competing machines did not have to make excessively sharp turns. This had the effect of greatly reducing the risk of collision at the turning points, and was an excellent feature which we hope will be retained in all subsequent races of the year. In fact, with the turning points so arranged it would appear that—to really skilled pilots, at any rate—but little danger need attend racing of even a considerable number of machines.

The race for the Selfridge Cup was won by Mr. H. J. Willis on the Midland Aero Club's "Moth" G-EBLW, an old-timer



["FLIGHT" Photographs]

**PERSONALITIES AT BRISTOL MEETING: On the left, the Lord Mayor and Lady Mayoress of Bristol, with Col. H. C. Woodcock, M.P. On the right, three judges: Mr. George Parnall, Col. M. O. Darby, and Mr. R. A. Bruce.**





["FLIGHT" Photograph]

**SOME PUPILS OF THE BRISTOL FLYING SCHOOL :** From left to right : Pilot-Officer Jones, Flying-Officer Davies, Pilot-Officer Candy, Flying-Officer Moss, and Pilot-Officers Trevenard, Walwin, Swallow, and Tickell. Seated, Pilot-Officer Hinde.

fitted with Mark I "Cirrus" engine. His average speed was 85 m.p.h. Second came Mr. H. B. L. Dixon, on the Newcastle Club's "Cirrus-Moth" G-EBPT, and third the Lancashire Aero Club's "Cirrus-Avian," piloted by Mr. R. R. Williams.

Three Hawker "Woodcocks" (? as a compliment to Bristol's M.P.) with Bristol "Jupiter" engines, from No. 17 (Fighter) Squadron, Upavon, next gave an exhibition of formation flying and aerobatics, concerning which it is sufficient to say that better has been seen on previous occasions.

According to the programme, Captain Broad was to give an exhibition of "How NOT to fly," on a de Havilland "Moth" fitted with Handley Page automatic slots. When the event was due to start, however, Broad had not arrived, and Squadron-Leader T. H. England took his place, flying the "Cirrus-Moth," on which he is shortly starting on a demonstration tour of Europe. This



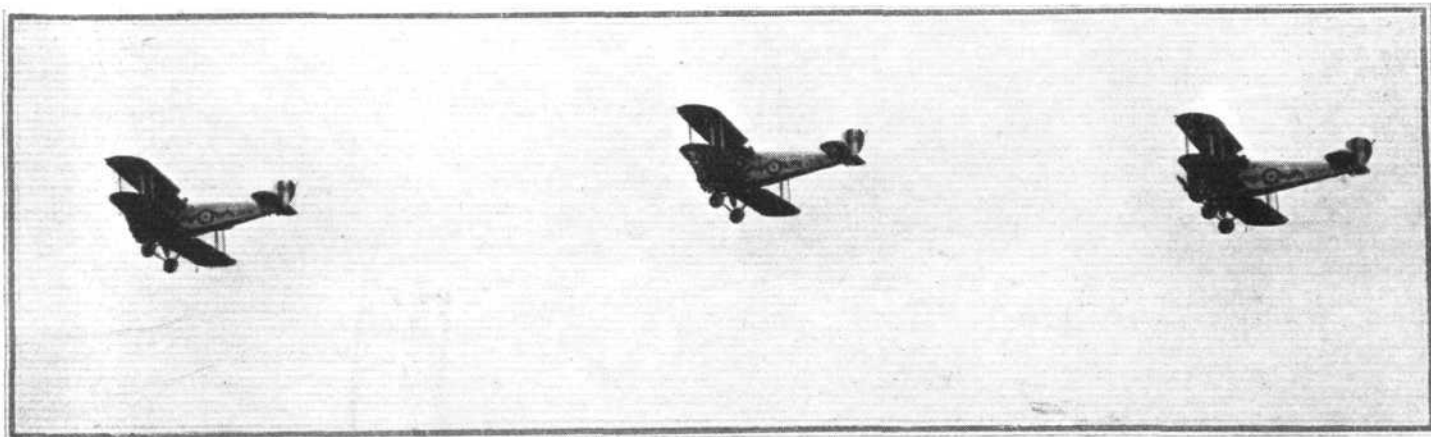
["FLIGHT" Photograph]

**Not worrying !** In the centre is seen that friend of private flying, Capt. Lamplugh, of the British Insurance Group, who got through the meeting without heart failure. On his right is Mr. A. S. Butler, and on his left Mr. Malcolm, both well known de Havillanders.

machine has not only the automatic slots but also the "split" undercarriage. The question now arises : If the plain "Moth" with slots is known as the "Sloth," should not the slotted "Moth" with split undercarriage be known as the "Sploth" ?

Just as England taxied out to begin his demonstration, Broad arrived on a "Moth" fitted with the new de Havilland engine, carrying as passenger Mr. F. St. Barbe. Fortunately, the police on duty were not very observant, otherwise some explanation might have been called for regarding the peculiar display of registration letters. While the machine was the right way up it was TD, but when upside-down it unaccountably turned itself into WS.

However, to return to Squadron-Leader England's demonstration : Doing the "craziest" take-off we have seen for a long time, he proceeded to show "how not to fly" with a vengeance. Seasoned pilots hid their faces in their hands ; press



["FLIGHT" Photograph]

**AT THE BRISTOL MEETING :** The R.A.F. contribution was in the form of demonstrations, bombing and machine-gunning by three Hawker "Woodcocks" with Bristol "Jupiter" engines, here seen in formation "line astern."

photographers became giddy trying to keep their cameras trained on the machine; the public gaped, and "an altogether excellent time was had by all," except possibly by the unfortunate "Sploth." The demonstration was certainly remarkable, and one shudders to think what the future has in store when "crazy-flying" specialists like Noakes and Fogarty discover what *can* be done with a slotted aeroplane.

In the balloon-bursting competition the object was to destroy a bunch of toy balloons as soon as possible, the maximum time permitted being three minutes. Dr. Whitehead Reid was the first to try, on his Westland "Genet-Widgeon II." In landing he slightly damaged his undercarriage. Next was Mr. White on "Cirrus-Moth" NO, followed by Flight-Lieut. Bonham Carter on the "Genet-Imp" TE. On one occasion he destroyed several balloons by half-looping into them from below. Next came Mr. Brown on "Cirrus-Avian" VU, who proved deadly to the balloons. Only one of the ten got away. Mr. Alan Goodfellow on "Cirrus-Avian" RR was next, followed by Mr. Parkinson on "Cirrus-Moth" PT. In the end it was announced that Brown and Parkinson had tied, both having destroyed 9 out of 10 balloons within their time limit.

An air duel between two Hawker "Woodcocks" filled up the interval before the start of the main race of the day, that for the "Talbot O'Farrell" Challenge Trophy. So many entries had been received for this race that four preliminary heats had to be flown during Saturday morning, those securing first and second place in the heats being entitled to fly in the final in the afternoon. The first heat saw Mr. Uwins as winner, on a Bristol training machine with Bristol "Lucifer" engine. This machine had been carefully "cleaned up," and to the surprise of everyone its average speed in the heat was 109 m.p.h. Second came Mr. Parkinson on the Newcastle Club's "Cirrus-Moth" PT. In the second heat Flight-Lieut. Bonham Carter was first on the Parnall "Genet-Imp," averaging 101 m.p.h., with Mr. Will Hay, the famous comedian (Watt's your name?) on "Cirrus-Moth" RX second. First and second in heat 3 were F/O Thorne on the R.A.E. Aero

Club's "Cirrus-Avian" QN, and Miss O'Brien on her "Cirrus-Moth" OS. Miss O'Brien had cut her hand rather badly in swinging her propeller, but very pluckily "carried on." The last heat (4), was won by "Mr. Harold Brooklyn" on "Genet-Widgeon" RQ, with Mr. Mathews of the London Club second on "Cirrus-Moth" MF.

Of the eight machines to fly in the Final, it was a foregone conclusion that, barring accidents, Mr. Uwins would have a "walk-over" on the "Lucifer-Bristol." Although he had averaged 109 m.p.h. in the heat, he was started ahead of the R.A.E. "Cirrus-Avian," which had averaged about 101 m.p.h. It seemed that there was a chance of Bonham Carter getting second place on the Parnall "Genet-Imp." The eight machines were started in the following order: OS, MF, RX and PT together, TE, RQ, GA and QN. The competitors had to fly two laps of the course, and when they came around the first time MF was in the lead, with OS second and GA (the "Lucifer-Bristol") and PT together. PT abandoned the race, as did also RX. (It was believed that Mr. Will Hay had thought of the answer to the question "when is an apple tart?" and wanted to tell someone).

At the finish Uwins came in on GA a long way ahead of the rest, but the fight for second place was an exciting one, Bonham Carter just managing to overtake "Harold Brooklyn" before the finishing, the two machines being separated by a couple of lengths only. The average speed of the winner was 108 m.p.h. The Parnall "Genet-Imp" did 100.75 m.p.h., and the "Genet-Widgeon" 102 m.p.h.

"Wing-walking" seemed to interest the spectators but mildly, and the parachute jump had to be cancelled owing to the thunderstorm which broke as the last race was finishing.

Finally, the day came to a close with an "Attack by Hostile Aircraft on Armoured Cars and Tanks," the aircraft being the "Woodcocks" and the cars provided by the Gloucestershire Hussars. The show was rather uninteresting and very unconvincing.

To wind up the proceedings, Her Grace the Duchess of Beaufort presented the prizes to the winners of the various events



### The Air Tourists

LADY HEATH reached Tunis from Tripoli on May 4 after stopping at Sfax for six hours. While landing at Tunis it is reported that damage was done to the machine, Avro "Avian" (Cirrus). Lieut. Bentley and his wife also landed at Tunis soon afterwards in their D.H. "Moth" (Cirrus). On May 8 Lady Heath arrived in Rome, having successfully accomplished the crossing from Africa. The two parties are flying to England. An Italian seaplane which was sent to escort Lady Heath to Malta and was reported missing, was found later safe on the African coast. Presumably the ocean flight to Malta is being avoided by tourists now.

### Tour of French Air Units

WING-COMDR. SMYTH-PIGGOTT reached Rabat, in Morocco, on his D.H. "Moth" on May 2. He left Eastchurch recently to visit the French Air units.

### Khartoum-Pretoria in Four Days

Two of the South African Air Force machines which had accompanied the annual R.A.F. flight as far as Khartoum reached Pretoria on May 4, having flown from Khartoum, 3,000 miles, in the record time of four days. The other two machines of the flight are held up at Katunga with engine trouble. The rapid trip was tried as an experiment, and it was considered that success would suggest that a flight from the Cape to Cairo could be done in six days.

### Co-operation

WING-COMDR. WACKETT left Richmond, New South Wales, on May 2, for Singapore in an amphibian of his own design called the "Widgeon." He reached Darwin on May 6. It is his intention to join the four R.A.F. "Southampton" flying-boats which recently reached Singapore from England and to accompany them, when they continue their service flight to Australia, as a representative of the Royal Australian Air Force.

### To Try Again

CAPT. F. T. COURTNEY, the test pilot, is again preparing to fly the Atlantic from east to west. Our readers will remember he left Plymouth last year in an all-metal Dornier flying boat for the Azores but was forced to make for Corunna, Spain. He is again to use a Dornier, driven by two Napier 500 h.p. engines. It is being tested at Pisa, Italy, and will be flown to England for the start across the Atlantic. Wireless will be carried.

### French Long-Distance Tour

CAPT. PELLETIER D'OISY, the well-known French pilot, Capt. Govin, and M. Carol (a mechanic) left Le Bourget, Paris, on May 8, to fly by stages to Tokyo, via Asia Minor, the Persian Gulf, India, and Indo-China. They intend to make the first stop at Bucharest and to cover 1,000 miles a day. The return flight from Tokyo will be via Siberia and Moscow. The object of the flight is to explore the possibilities of regular air communications with the French Indo-China and the Far East. Their machine is a Potez 29 fitted with a 470 h.p. Lorraine-Dietrich air-cooled radial engine.

### Italian Polar Flight

THE "Italia," the airship commanded by Gen. Nobile for the coming North Pole expedition, arrived at its base at King's Bay, Spitzbergen, on May 6. It had left Seddin, Pomerania, on May 3 and was sighted over Stockholm, where an escort of five Swedish machines met it, and later at Vasa, Finland. It flew up the Finnish coast after crossing the Gulf of Bothnia and landed at Vadso, in the extreme north of Norway, after a flight of 29 hours. During the mooring slight damage was done to the airship. It was the intention to continue the flight to Spitzbergen within a few hours, but contrary weather forbade this. The airship eventually left on May 5 and crossed the Arctic Ocean to Spitzbergen by the following morning.



### New Canadian Air Services

On May 5 the Canadian Pacific Express Co. inaugurated an air service between Rimouski—where all the Atlantic steamers for Canada stop to take on board the pilot—and Quebec, Montreal, Ottawa and Toronto, for the transport of ordinary packages of merchandise under 200 lbs. weight, money, and securities. This is the first express company to inaugurate a regular air express service in Canada. An air service for mails across Canada to the Pacific Coast is now being considered by the Canadian Government. It will probably not mature until next summer, however, in order to gather experience from present services.

### Vancouver Air Developments

WESTERN CANADA AIRWAYS, LTD., of Winnipeg, the largest commercial aviation firm in Canada, has purchased the Vancouver company, Pacific Airways, Ltd. In June an air service for passengers and parcels will start, while other air activities will be patrols of fisheries and forest.

### American Millionaire's Air Tours

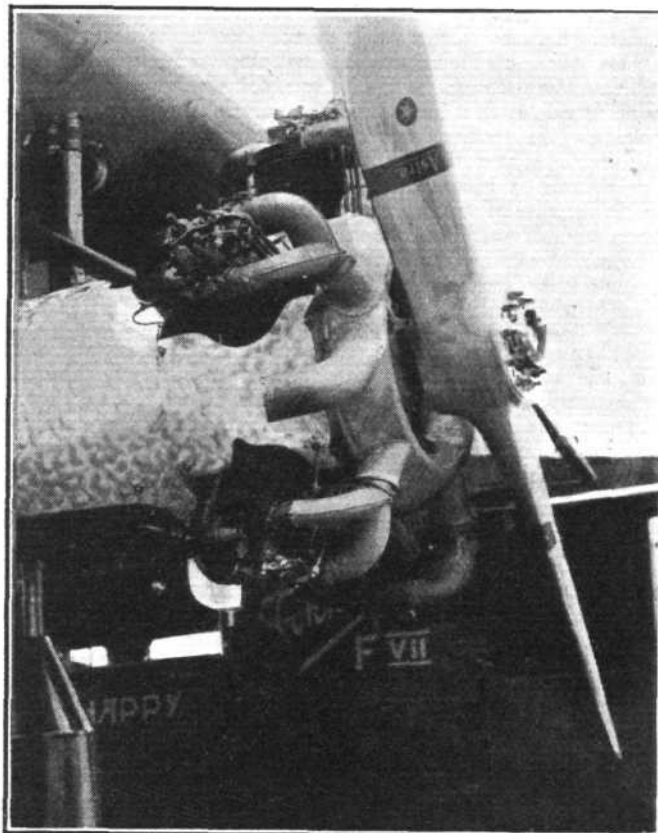
MR. VAN LEAR BLACK, the American millionaire, is leaving England by air for Cape Town on about May 15. His pilots will be M. Geysendorffer and M. Scholte. His valet, "Leo," will also be a passenger, but his daughter will not accompany, as stated elsewhere. On the return from Cape Town, he will then set off in the same monoplane for China and Japan. The machine is a Fokker F.VII chartered from the K.L.M. fitted with three Gnome-Rhone Bristol "Titan" engines which are mainly constructed of "Jupiter" parts. Five "Jupiter" cylinders are used and the French version of the engine is rated at 240 h.p. Six passengers can be carried and the Fokker will climb on any two engines.

### Twenty Years Ago!

*Extract from "The Auto" (Precursor of "Flight"), May 9, 1908.*

"M. Delagrangé has a Narrow Escape.— . . . On Saturday afternoon, May 3, both aviators [MM. Farman and Delagrangé.—ED.] were diligently at work trying to secure the Armengaud Prize for remaining in the air during 15 minutes. . . . Time after time both experimenters re-started their interrupted flights, and at last, as the time limit (sunset) was drawing to a close, M. Delagrangé rose in the air on his machine and made off across the Issy parade ground on what had every appearance of being the commencement of a most successful soar. When the time came for him to turn round, however, the machine got out of control, and, to the horror of all, he was seen to travel through the air towards the large crowd which had collected on the outskirts of the field. . . . it must surely have been a terrible catastrophe had M. Delagrangé and his aeroplane actually fallen amongst the spectators, and those in the immediate vicinity had considerable cause to feel thankful for the providential manner in which they escaped injury through the aeroplane sustaining its flight sufficiently long

to pass over their heads. Immediately behind them it crashed to the ground, and damaged to a certain extent a taxicab in doing so. M. Delagrangé was thrown clear, and, luckily for him, landed on soft sand, thereby receiving no injuries whatever."



"FLIGHT" Photograph

The Gnome-Rhone Bristol "Titan," as used on the Fokker F.VII chartered by Mr. Van Lear Black for a flight to the Cape and back, is built up very largely from "Jupiter" parts. Five "Jupiter" cylinders are used, and the French version of the engine is rated at 240 h.p. The Bristol "Titan" has not yet gone into production, as the Bristol company desires to be quite sure what type of engine is likely to be wanted before commencing building in quantities. The Gnome-Rhone company, on the other hand, has gone into production with the "Titan."



"FLIGHT" Photograph

**AN AIR YACHT DE LUXE:** The three-engined Fokker monoplane which Mr. Van Lear Black has chartered from the K.L.M. for his tour to the Cape and back. The pilots will be Geysendorffer and Scholte, and Mr. Black will be accompanied by his valet "Leo." The tour is scheduled to start around May 15. The engines are the new Gnome-Rhone Bristol "Titans."



## HYDRAULIC BRAKES FOR AIRCRAFT

THE question of fitting an efficient braking system to aeroplanes has long been the subject of design and experiment. The increasing weight and landing speeds of aircraft has brought about an increasing demand for some extra means of pulling them up, besides any addition to friction which is usually the sole factor relied upon.

The giant, all-metal monoplane, the "Inflexible," built by William Beardmore & Co., Ltd., for the Air Ministry, has been fitted with a form of braking—the Lockheed hydraulic system—that pulls the machine up in a remarkably short distance. When testing this system on one of the largest aeroplanes—weighing when fully laden, approximately 16 tons—the landing distance was reduced 30 per cent., and when considering that this was only a preliminary test wherein all the pressure was not applied, it is almost certain that, on further tests, the landing distance could be reduced from, say 40 per cent. to 50 per cent.

The main characteristics of the "Inflexible" are:—wing span, approximately, 155 ft.; length, approximately, 76 ft.; landing wheels, 7 ft. 6 in.; inside diameter of the brake drums, 36 in.; total weight when fully laden, 16 tons.

The hydraulic braking system fitted was exactly similar to that now fitted by many car manufacturers on their cars, with the exception that three master cylinders were fitted instead of one.

We give below definitions (a), (b) and (c) against each of these cylinders, together with description of the various uses in the application:—(a) Master cylinder is fitted and worked in conjunction with the tail skid in such a manner as to prevent the piston moving more than 1 in., and this is ensured by a cam arrangement.

(b) Master cylinder is fitted in the pilot's cockpit for the pilot to operate by hand. To enable the pilot to apply the brake easily, a system of toggles was incorporated which gave a leverage of 40 to 1—moving the piston  $1\frac{1}{2}$  ins.

(c) Master cylinder is, perhaps, the most interesting installation of the three, as it is designed specially as a pressure-limiting cylinder; this is effected by fitting a large spring behind the piston with the ordinary adjusting arrangement for varying the pressure in the system to whatever pressure is required.

Fitted direct to each wheel brake lever were special wheel cylinders not unlike those fitted to cars, excepting that only one piston was used working direct on to toggles to enable extra pressure being applied on account of the enormous weight of the aeroplane.

The connecting parts to the various master cylinders and wheel cylinders were standard hydraulic copper tubing and Lockheed patent flexible hoses, similar to those fitted on cars.

The question of fixing suitable bleeding points was of vital importance, as the satisfactory performance of a hydraulic braking system depends largely upon the absence of air in the system, which once expelled cannot regain an entry owing to the circuit being entirely enclosed.

The bleeding points were arranged as follows—One at the extreme end of each master cylinder and one at the extreme end of each wheel cylinder, and finally, one at the highest point of the pipe line, making a total of 6. Of course, care had to be taken to ensure that the highest point did not come above the level of the main reservoir for replenishing.

Upon taking off for flight—the pilot's brake being in the "off" position and the tail skid on the ground, the piston operated by same, only displaced fluid to actually take up the clearance between the brake shoes and the drum, this ensuring that the wheels are properly free to revolve. Upon the plane taking off the tail skid piston is returned to its normal position by the strength of the brake pull of springs.

At any time during the flight, the pilot applies his hand brake lever to exert a given pressure in the system previously ascertained and registered on a pressure gauge.

To overcome the force exerted by the brake pull off springs—thus once more taking up the slack between the brake shoes and the drums so that upon landing the pilot is able to forget entirely his braking system as this will automatically be taken care of by the tail skid coming into contact with the ground and thus causing the actual braking force through the additional displacement of the fluid by the tail skid piston. It will readily be seen that should the brakes have any tendency to cause the machine to nose dive, the tail skid will once more leave the ground, thus allowing free rotation of the wheels.

Alternatively, the pilot can actually land in the usual manner, letting his tail skid take up the slack between the brake shoes and the drums and apply such braking force by means of his hand lever as he may consider necessary.

To avoid any excessive braking force being applied to the wheels so as to actually skid the tyres, the third master cylinder referred to is interposed in this circuit the piston of which is controlled in its movements by a spring having a predetermined strength acting against the piston in the said master cylinder. The spring actually used limited the maximum pressure in the system to 360 lbs. per square inch.

### D.H. "Moth" Lands in Battersea

CAPT. A. S. WHITE, chief instructor of the D.H. school, made a successful landing in a D.H. "Moth" in Battersea Park on May 3. He was flying from Stag Lane to Croydon, and engine trouble developed when over Chelsea. The nearest open space was the park, although it was well populated. In spite of this, no injury was caused to anyone nor the machine.

### Atlantic Airmen's Reward

A PRIZE of 12,500 dollars offered by Mr. Alwenner Gren, of Stockholm, for a successful flight from Europe to America, was presented to Baron von Huenefeld on May 4. It was accepted by the Baron and then handed by him to Fraulein Herta Junkers, to be given to her father, who designed the "Bremen," the machine which recently flew the Atlantic. In honour of the Baron's Irish companion, Maj. Fitzmaurice, a new town in Saskatchewan will be named after him. The three airmen flew from Washington to New York on May 3 to remain a week.

### Germany's Second Bid for the Atlantic

ANOTHER German Atlantic flight will start shortly. The pilot will be Herr Johann Risticz, of the Junkers Company, and his passenger will be Mme. Lilli Dillenz, the Viennese actress. A start is anticipated from Saalfeld, Thuringia, to Baldonnell, Ireland, for the first stage. Their machine is similar to the "Bremen." Mme. Dillenz took part in an attempt last year with Herr Stark and Loose, when after reaching Azores the machine was damaged and the flight abandoned.

### French Atlantic Machine Tested

THE Couzinet monoplane fitted with three 180 h.p. Hispano-Suiza engines, in which M. Drouhin is to attempt an Atlantic flight from Paris to New York, is now being tested at Orly, in France. It weighs nearly 9 tons fully loaded.

### Belgian Flying Club

A COMMITTEE presided over by M. Jaspar, Prime Minister of Belgium, has authorised the formation of a Brussels flying club, to be subsidised by the Treasury. It will train young pilots, from whose ranks the future military pilots will be drawn.

### The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the Fund was held at Iddesleigh House, on May 3. Mr. W. S. Field was in the chair, and the other members of the Committee present were:—Mrs. L. M. K. Pratt-Barlow, O.B.E.; Squadron-Leader Douglas Iron, O.B.E. The Committee considered in all 13 cases, and made grants to the amount of £151 19s. 2d. The next meeting was fixed for May 17, at 2.30 p.m.

### New Director of Works and Buildings, Air Ministry

THE Air Ministry announces:—The Secretary of State for Air has appointed Colonel Commandant H. Biddulph, C.B., C.M.G., D.S.O., to be Director of Works and Buildings, Air Ministry, as from July 7 next, in succession to Major-General Sir William A. Liddell, K.C.M.G., C.B., who is retiring from the public service.

### Commr. Bird on the Southampton Harbour Board

COMMANDER J. BIRD, Chairman and Director of the Supermarine Aviation Works, Ltd., has been elected a member of the Southampton Harbour Board, and recently attended his first meeting as representative of Waterside Frontages of the Port of Southampton and District. It may be of interest to note that included in the latter are Messrs. A. V. Roe and Co., Ltd., and the Fairey Aviation Co., Ltd. In addition to representing the Waterside Frontages, Commr. Bird will be in the position to look after the future of aviation so far as the Harbour Board may be concerned, and there is no doubt his services in this case will be of valuable assistance to the Board.

# THE ROYAL AIR FORCE

London Gazette, April 24, 1928

## RESERVE OF AIR FORCE OFFICERS

### General Duties Branch

Flying Officer F. W. M. Matthews is granted a commn. in Class A in this rank on resignation of his permanent commn. (April 18); E. C. L. Basan is granted a commn. in Class A.A. as Pilot Officer on probation (April 11); Pilot Officer M. T. Bromley is promoted to rank of Flying Officer (April 12); Pilot Officer on probation R. P. J. Radbourne is confirmed in rank (April 20); Flying Officer C. R. McMullin is transferred from Class C to Class A (March 31); Flight Lt. S. C. Harker is transferred from Class A to Class C (Feb. 19); Pilot

Officer H. P. Wilson resigns his commn. in the Special Reserve on appointment to a short-service commn. (April 2).

### Medical Branch

Flight Lt. L. Game ceases to be employed with Regular Air Force (April 21).

## AUXILIARY AIR FORCE

### Princess Mary's R.A.F. Nursing Service

Matron Miss C. Cameron, R.R.C., is placed on the retired list (April 6).

ERRATUM (*Flight*, April 19, 1928, page 275): The rank of Pilot Officer W. B. Causer is as now described and not as stated in the *Gazette* of April 13.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

### General Duties Branch

Wing Commander A. J. Miley, O.B.E., to H.Q., Coastal Area, for Air Staff duties, 1.5.28.

Squadron Leaders: E. O. Grenfell, M.C., D.F.C., A.F.C., to No. 1 Sqn., Tangmere, 19.3.28. W. Sowrey, D.F.C., A.F.C., to R.A.F. Practice Camp, Sutton Bridge, 8.4.28. C. H. Elliott-Smith, A.F.C., to No. 504 Sqn., Hucknall, 23.4.28.

Flight Lieutenants: A. McR. Moffatt, to R.A.F. Practice Camp, North Coates Fitties, 29.3.28. E. D. Davis, to R.A.F. Practice Camp, Weston Zoyland, 4.4.28. R. E. Meek, to No. 13 Sqn., Andover, 18.4.28. R. H. Haworth-Booth, D.F.C. to No. 504 Sqn., Hucknall, 26.3.28. G. R. O'Sullivan, to Sch. of Naval Co-operation, Lee-on-Solent, 27.4.28. A. G. Thackray, to No. 9 Sqn., Manston, 26.4.28. L. W. Jarvis, to R.A.F. Depot, Uxbridge, 12.4.28. W. M. M. Hurley, to No. 4 Flying Training School, Egypt, 22.3.28.

### Stores Branch

Flying Officer H. J. Hunter, to R.A.F. Base, Gosport, 26.4.28.

### Accountant Branch

Squadron Leader C. C. J. Croydon, to Electrical and Wireless School, Flowerdown, 2.5.28.

### Medical Branch

Squadron Leader P. H. Young, M.B., to R.A.F. General Hospital, Iraq, 25.3.28.

Squadron Leader (Dental) T. K. Place, to R.A.F. General Hospital, Iraq, 7.4.28.

Flight Lieutenant J. G. Russell, M.B., B.A., to R.A.F. Depot, Uxbridge, 12.4.28.

Flying Officers: G. W. McAleer, M.B., L. Freeman, and W. Heron, M.B., to R.A.F. General Hospital, Iraq, 25.3.28. E. P. Carroll and J. F. McGovern, M.B., to R.A.F. Combined Hospital, Iraq, 27.3.28.

## TIME FLIES AT HALTON

A VERY interesting event took place last month at Halton Camp. The Halton Debating Society, which has hitherto presented several straight plays, surpassed itself by producing an original musical comedy, "Time Flies." The entire cast was composed of Halton A.A.S., and all the scenery and "noises off" were made by them. The play was written and stage-managed entirely by members of the educational staff, and the music was composed by a local musician. The orchestra and dance band, conducted by the composer, played admirably. The first scene shows a dormitory in camp, just before lights out, and one of the three heroes is explaining his new invention—a time machine—after the style of that described by Mr. H. G. Wells in his well-known novel. Act II begins with the three intrepid adventurers travelling back through time. When 1588 is reached, the machine stops, and the adventurers have an exciting time in the old-world village of Wendover, where, being unable to explain their presence, they only just escape being pressed into Her Majesty's Army. The machine plunges into time again, and an amazingly varied series of events are witnessed and described before it again stops, this time at Stonehenge in 1928 B.C. The adventurers arrive in time to supply the need of a human for sacrifice, and one of their number, being captured, is only rescued by a melodramatic entry of the other two with revolvers. The time-machine, on being reversed, seems a little unruly, for it refuses to stop at A.D. 1928 and goes right on for another 100 years, plunging the trio into the home life of one of their own descendants. This awkward predicament is somewhat lost to sight under the marvels of wireless telephony and television. Among the scenes witnessed is the 1928 boat-race (taken by a special representative sent for the purpose and shown by the standard Kodascope Projector). Even in the future, life is full of trouble,



**FLYING INTO A.D. 2028:** The three adventurers from Halton in their Time Flying machine see the wonders of 100 years hence.

and the heroes hastily seek their machine, preferring the camp life of A.D. 1928 to any other period they have sampled.

The plot is ambitious, but nothing seems too much for the R.A.F. The Debating Society (and especially the producer, Mr. A. C. Kermod) is to be most heartily congratulated on its wonderful achievement, which gave three hours' continuous enjoyment both to their own fellows and the visitors.



**Time Flies at Halton:** Some members of the Halton Debating Society, who presented a successful and original comic opera, "Time Flies," last month.



## IN PARLIAMENT

### Fatal R.A.F. Accidents

Mr. Robinson, on April 25, asked the Secretary of State for Air if he would state the number of fatal accidents in the Royal Air Force and the number of lives lost since January 1, 1928, and in each year since the formation of the force; whether safety appliances are fitted to all the aeroplanes used in training and on active service; and when it is anticipated that the force will be equipped with all-metal aeroplanes.

Sir Samuel Hoare: As regards the first part of the question, figures since the year 1918, which was a war year and is therefore excluded, are as follows:—1919, number of fatal accidents, 138; number of deaths, 180; 1920, 22 and 37; 1921, 22 and 37; 1922, 32 and 51; 1923, 31 and 46; 1924, 48 and 71; 1925, 41 and 58; 1926, 53 and 85; 1927, 48 and 55; 1928 (to April 24), 15 and 24.

As regards the second part of the question, I would refer to the statements regarding parachutes and slot mechanism contained in the White Paper accompanying Air Estimates for this year. As regards the last part, it is expected that at least nine types of all-metal machines will be in service before the end of 1928, and that the whole Air Force will be so equipped within five years. The all-metal machine is not, however, being introduced as a safety measure, but to facilitate the standardisation of aircraft and simplify their production, maintenance, and repair.

### High-speed Flights and Tetraethyl

Sir Philip Sassoon, on May 2, in answer to Mr. Day said Tetraethyl was used by high-speed aircraft during practice flights undertaken by officers in the Air Service. They had been experimenting for the last four years with this special spirit, and there was no evidence to show that it was more dangerous than the ordinary spirit—it was just the same.

### England-India Air Services

Sir P. Sassoon, in reply to Mr. Malone, said the sum provided in the current Air Estimates in respect of subsidies on the Cairo-Karachi route is £93,600 and that it had been decided to substitute a new and comprehensive agreement with Imperial Airways for the agreements at present in force and relating to the European and Eastern services respectively. The new agreement would provide for the operation of a weekly air-mail service between England and India beginning on or about April 1, 1928, and he was hopeful that it would be possible to adhere to this date.

## AIR MINISTRY NOTICE

### Air Gunnery and Bombing Ranges: Holbeach, Donna Nook, and Stert Flats, Bridgwater

1. Air gunnery and bombing practice, which takes place within the areas and during the periods detailed below, forms a danger to aircraft except when flying above the minimum safety height specified. No liability for accidents arising to aircraft from the use of the ranges in these areas will be admitted. No special warning signals for aircraft will be displayed, but the usual flag signals will be employed at certain points whenever practice is in progress.

A. THE WASH, HOLBEACH, LINCOLNSHIRE.—*Description and Position.*—An irregular-shaped area, dimensions approximately 3½ miles by 3 miles. Situated on the coast (in the Wash) and extending seawards, the centre of the area being approximately 9 miles N.E. of Holbeach, Lincolnshire.

*Programme of Firing.*—Daily, Sundays excepted, until September 30, 1928, as follows:—Mondays to Fridays (inclusive), 0700 to 1800; Saturdays, 0700 to 1200; minimum safety height above sea level, 14,000 ft.; warning signals, red flags.

B. DONNA NOOK, LINCOLNSHIRE.—*Description and Position.*—An irregular-shaped area, dimensions approximately 5 miles by 4 miles. Situated on the coast and extending seawards, the centre of the area being approximately 13 miles S.E. of Great Grimsby, Lincolnshire.

*Programme of Firing.*—Daily, Sundays excepted, until September 30, 1928, as follows:—Mondays to Fridays (inclusive), 0600 to 1800; Saturdays, 0600 to 1200; minimum safety height above sea level, 14,000 ft.; warning signals, red flags.

C. STERT FLATS, BRIDGWATER, SOMERSETSHIRE.—*Description and Position.*—An irregular-shaped area, dimensions approximately 4 miles by 3 miles. Situated on the coast and extending seawards, the centre of the area being 7 miles N.W. of Bridgwater, Somerset.

*Programme of Firing.*—Daily, Sundays excepted, until September 30, 1928, as follows:—Mondays, Wednesdays, Fridays and Saturdays, 0830 to 1800 hrs. Tuesdays and Thursdays, 1000 to 1800 hrs.; minimum safety height above sea level, 14,000 ft.; warning signals, red flags. (No. 34 of 1928).

### Royal Air Force Dinner Club

The Sixth Annual Dinner of the Royal Air Force Dinner Club will be held in the Connaught Rooms at 8 p.m. on Friday, June 29, 1928, the eve of the Royal Air Force Display. Membership of the Club is open to past and serving officers of the Royal Air Force (including the Royal Naval Air Service and the Royal Flying Corps). Forms of application for membership may be obtained from the Honorary Secretary, Royal Air Force Dinner Club, No. 3 Flying Training School, Royal Air Force, Grantham, Lincs.

Facilities are being extended whereby units can take advantage of this annual dinner to hold a reunion of past and serving officers. Members will be asked to state on the application for a dinner ticket the unit with which they wish to sit, if desirous of taking advantage of these facilities. On receipt of this information the necessary seats will be reserved by the Committee.

The cost of membership is 5s. annually, or £3 3s. for Life Membership; the cost of a ticket for the dinner is 10s.

## PERSONALS

### Married

The marriage took place very quietly in Bristol, on April 21, of Flying Officer JOHN ARMOUR, younger son of Col. G. D. Armour, of Malmesbury, Wilts, and the late Mrs. Emma Denholm Armour, and Mrs. MARGARET STORER, only daughter of Mrs. Patterson, of Ashton Keynes, Wilts, and of the late Mr. T. S. E. Mills.

Flying Officer CYRIL FRANCIS CAUNTER, R.A.F., of 8, South Mansions, Brondesbury, N.W.6, son of Mr. L. G. Caunter, was married on April 24, at the Church of Our Lady and St. Winifred's, Kew Gardens, to KATHLEEN EVE MURRAY, daughter of Mr. and Mrs. Patrick Murray, of 32, Pensford Avenue, Kew Gardens.

Flight-Lieut. EDWARD PERCY MACKAY, R.A.F., was married on April 30, at All Saints', Upper Norwood, to URSULA, daughter of Mr. and Mrs. J. N. COMPER.

The marriage arranged between CAPTAIN GEORGE FRANCIS MEAGER, A.F.C., and Miss BETTY ROMILLY BREWER, only daughter of Mr. and Mrs. Griffith Brewer, of Little Burvale, Walton-on-Thames, took place at the Oratory, Brompton, on Saturday, April 28.

### To be Married

The marriage arranged between Flight-Lieut. W. A. K. DALZELL, Royal Air Force, and PEGGY THOMSON, daughter of Mr. and Mrs. William Thomson, of 36, Albert Court, S.W.7, will not take place.

The engagement is announced of Flight-Lieut. HERBERT N. HAMPTON, D.F.C., Royal Air Force, elder son of Mr. and Mrs. S. T. Hampton, of Bishop's Stortford, and MARJORIE, elder daughter of Mr. and Mrs. F. E. BODIMEADE, of Kenton, Harrow.

The engagement is announced between Capt. KENNETH RAWSON-SHAW, late R.F.A. and Hon. Capt. late R.A.F., of Karuna, Sergoit, Kenya, elder son of William Rawson-Shaw, J.P., formerly M.P. for Halifax, and Mrs. Rawson-Shaw, of Slindon, Sussex, and Mrs. COATES, of Kenley, Sergoit, widow of Mr. Charles Coates.

The marriage between Mr. FREDERICK ALBERT TROTTER (late R.A.F.), youngest surviving son of Canon John Crawford Trotter and Mrs. Trotter, of Glenleary, Ramelton, Co. Donegal, and Miss DOROTHY ISABEL HENRY, M.B., elder daughter of Mr. James Henry, K.C., and Mrs. Henry, of 32, Belgrave Square, Dublin, will take place quietly in June.

### PUBLICATIONS RECEIVED

*Technical Notes: No. 264.*—Tests of the N.P.L. Airship Models in the Variable Density Wind Tunnel. By George J. Higgins. September, 1927. *No. 265.*—Measurement of the Moments of Inertia of Full-Scale Airplanes. By M. W. Green. September, 1927. *No. 266.*—Airfoil Lift with Changing Angle of Attack. By Elliott G. Reid, September, 1927. *No. 267.*—Pressure Distribution on Wing Ribs of the VE-7 and TS Airplanes in Flight. By R. V. Rhode. October, 1927. *No. 268.*—Mass Distribution and Performance of Free Flight Models. By Max Scherberg and R. V. Rhode. October, 1927. *No. 269.*—The Distribution of Loads Between the Wings of a Biplane having Decalage. By Richard M. Mock. November, 1927. *No. 270.*—The Characteristics of the N.A.C.A. 97, Clark Y, and N.A.C.A.-M6 Airfoils with Particular Reference to the Angle of Attack. By George J. Higgins. December, 1927. U.S. Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

*Journal of the American Society of Naval Engineers.* February, 1928. American Society of Naval Engineers, Washington, D.C., U.S.A.

### NEW COMPANIES REGISTERED

ARNOTT AND HARRISON (1928), LTD., 22, Hythe Road, Willesden, N.W.10. Capital £5,000, in £1 shares. Acquiring business of engineers, manufacturers of motor and aeroplane parts, carried on by Arnott & Harrison, Ltd., at 22, Hythe Road, Willesden. Permanent directors:—C. A. Miller, F. W. Halliwell, and P. J. Goodchild.

TAXIPLANES, LTD., 13, Queen's Road, Clevedon, Somerset.—Capital £1,500 in £1 shares. Objects to promote, assist and encourage aerial navigation in all its forms, to maintain and use aircraft for the transport of passengers and goods, etc. First directors: C. S. Clarke, G. V. Yorke, Jessie M. Clarke. Manager: C. Sidney Clarke.

### AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

#### APPLIED FOR IN 1927

Published May 10, 1928

382	F. S. WELMAN.	Aerofoils of monoplane. (288,683.)
1,913	S. H. EVANS.	Wings and body connection. (288,742.)
2,172	HEALEY-AEROMARINE BUS CO. INC.	Load-limiting clutch. (288,750.)
4,176	H. F. ALBHN.	Parachutes. (276,618.)
6,830	D. NAPIER AND SON, LTD., and H. C. TRYON.	Cylinder heads. (288,790.)
6,885	F. H. ORDIDGE.	Bomb-dropping devices. (288,791.)
27,896	E. A. PERRIN.	Flying machines, helicopters, etc (279,470.)

#### APPLIED FOR IN 1928

Published May 10, 1928

680.	H. LEO.	Focke-Wulf Flugzeugbau Akt.-Ges. Aeroplane construction. (288,944.)
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## FLIGHT,

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